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EDITORIAL.

COSMETIC SURGERY AS A FINE ART.

The desire on the part of mankind to improve on the work of Nature has always been paramount in the human breast. Instances without number could be given where defeat has resulted, but although the centuries that have passed show many instances of inglorious failure, such is the ambition and unrest of the people of to-day, that the bitter lessons recorded, far from discouraging or crushing the tentative attempts at improvement, are really so many incentives to more extraordinary performances. The latest advocate of the art of facial expression—an advocate who has small faith in Galton's theory of Eugenics since the knife spells for him all the virtues of the sword of Excalibur—is Dr. Charles C. Miller, whose book "The Correction of Featural Imperfections," appears to us so exhaustive of the subject and so fearfully and wonderfully made, that all importunities of opinion must be brushed aside, and even the mildest sort of criticism awed into quiescence. This of course was our first thought, but being disciples of the elder Pliny who said "I never read a book so bad but I drew some knowledge from it," we feel that a great injustice would be done the author were we cursorily to dismiss a book that bears the hall-mark, not only of earnestness born of a wiredrawn ingenuity, but shows how this medical philosopher in the street was sympathetically moved by the impact of accidental facial imperfections on his nature.

Plutarch in his life of Pericles says: "He who busies himself in mean occupations produces, in the very pains he takes about things of little or no use, an evidence against himself of his negligence and indisposition to what is really good," and bearing this in mind we must admit that the author would have had no trouble to find favor with the Greek historian, for his occupation is far from mean, in as much as it has for its message, the desire to mutate such undesirable

"featural imperfections" as "the double chin," "the inverted lip," "the nose with the bulbous tip," "hump nose," and "folds, bags and wrinkles about the eyes," into perfections that must surely invite a better opinion from the critical, and restore the rehabilitated to that position in society which would always have been theirs, had age and nature been less malicious.

When we remember the wrong inferences we have drawn as to character, temperament, and even morality, in connection with the above defects, a categorical denial of the vast possibilities attending the scientific interferences, as promulgated by Dr. Miller, would indicate that we are opposed to the proper understanding of character, and that selfishness compels us to frustrate any attempt on the part of a surgeon to benefit others, so that their lineaments may approach our own facial perfection. What we do object to is a surgeon demeaning the art of surgery by introducing into its practice the law laid down by Ibsen that evil is produced by circumstances and not by character. Of course "circumstances" in the special surgical province about which Dr. Miller has written, resolves itself into this: that thin lips, a scowl, and the absence of a dimple, are often instrumental in rendering a subject thus afflicted, an undecipherable human document; and though the traits of character which make for jollity are really part and parcel of his make-up, they are marred by these "featural imperfections"—hence their alteration for something better, so that the "evil" of misinterpretation and the subsequent change in character may be obviated.

Some years ago—if we mistake not, in 1862—Edmond About, the French novelist, wrote a novel, "The Notary's Nose," in which he showed that he was a poetical clinician, for his imagination soared high in describing the untoward possibilities of skin-grafting when the skin is removed from a drunkard and grafted on an aristocrat's nose. The many changes the nose underwent due to the bibulous habits of the original owner of the skin, are minutely recorded; but what interests us most in reading the story is the fact that the notary's character underwent such direful changes after he realized that the results of the operation were "somewhat" of a failure, that even his staunchest friends forsook him. In reading Dr. Miller's swift and headlong plea for interference with tip-tilted noses, and many others too numerous to mention, we are reminded of About's bitter felicity of phrase for, even now, though surgery has made many advances since the middle of the 19th century, there are possibilities of failure attending operations which have for their object the improvement of "featural imperfections."

PUBLIC LIBRARIES AND THE HEALTH OF THE CHILD.

That Public Libraries are a boon to the community is accepted as a fact by the unwary, and if it were not a truism that the unwary predominate in a community, any criticism bearing on the gratuitous dissemination of books could justly be thought a matter of supererogation. Among the unwary are not, as might at first be supposed, men and women of only limited intellect and experience, but some of the best educators of this country. By what peculiar and devious ways it happens that teachers are just the ones who uphold our public libraries with enthusiasm, when the training for their vocation ought to make even the most obtuse, sensitive to the best methods for the physical and mental growth of the child, is a problem of decided intricacy. Pedagogic societies of which we hear so much just at present, we take it, are much more interested in Women's Work and Wages, the Celtic movement in literature, the painters of the Renaissance, Orcagna and the Bassano family, than in a subject which should be to them brimful of vitality; otherwise the outside world—and now we mean the medical—would occasionally become cognizant of a spirit of revolt against the evil we have under consideration.

Medical men throughout the world are not unaware that until quite recently the growing child received but scant attention from scientific writers. Not so very long ago, in the schoolroom, precocity was thought to be a quality that needed either decided curbing, or the most extraordinary encouragement; dullness, a badge of dishonor, to be requited by certain marks so that its lowly position as a mental defect could not be mistaken; and inability to master arithmetic, when the predilection on the part of the child showed plainly a greater desire for reading and grammar, was placed in the same category with dullness. Though these various attitudes, on the part of educators and writers to the mental peculiarities of children, sound rather primitive now, enough of the strange misunderstandings, between teacher and pupil, remains to be the text for a medical sermon. And as if the aforementioned evils were not sufficient to engage the best thought of educators and writers for many a day, a new unnecessary evil has been added to the list, in the shape of the rather innumerable free libraries founded through the generosity of some of our misguided millionaires.

To characterize the free library, in so far as its doors are open to the old and young alike, other than as a menace to the mental growth of the child, is to mince matters. Moreover with the laxity that prevails in most American households, especially in the lower social circles, the young have privileges which the parents do not take the trouble to curtail, either for want of interest in the well-being of their offspring, or

lack of the proper education to make them good supervisors. Then again, the prevalence among the associates of the young, of certain reading habits, makes it almost impossible for parents, unless they are painstaking students of what ought to constitute the proper mental food for their children, to exercise enough disciplinary power to stamp out a nuisance such as the reading of jejune works of fiction. And though the free libraries may reiterate, until the crack of doom, that the books for the young on their shelves have been separated from all literary chaff, they fail to recognize the great harm done to the community by inviting all sorts and conditions of children to read. We cannot expect the stewards of free books to study the mental traits of each youthful applicant; or to differentiate between the child of psychasthenic precocity and the dullard. But the gravity of the situation would be brought home to educators and purveyors of free books alike, were they to study the dire results of artificial emotional stress and morbid obsessions in neurotic children. To say that these conditions are hereditary, is to hark back to something that is a mooted question, and a sham excuse for explaining our own stupidities in furthering undesired tendencies by feeding them on a so-called intellectual diet.

A solution of the problem of the sort of intellectual diet for the growing child, is not so difficult as would at first seem. In England, today, schools for mothers have been founded, and in a book recently published,* we read of the experiments instituted to reduce infantile mortality by establishing milk depôts, the gratifying results from instructing mothers in their homes by personal visitation and by demonstration in the schools, and the benefits accruing to the infant from a special department for infant consultations. These problems are worthy of the greatest attention, and should appeal to the philanthropists in this country, where as yet no school of the English sort has been attempted. But while we do not deny the importance of the most strenuous efforts for the reducing of infantile mortality, the problem of the deterioration or improvement in the mental growth of the parlous child, whose wit and cunning and ingenuity, either entrance or disgust us; and of the many other children who range from eminence to mediocrity, is of such gigantic proportions that schools for mothers and teachers, ought at once to be established in this country. In these schools, if properly supervised by medical men, the evils of our school curricula, our free libraries, our lax educational ideas as they prevail in innumerable households, could be thoroughly threshed, so that both mothers and teachers would soon know the sources of mental fatigue, nervous instability and hyperesthesia.

*Schools for Mothers. London: Horace Marshall and Sons.

SUICIDE AND THE FINANCIAL DEPRESSION.

The lesson taught by the excitement incident to the financial crisis, which recently upset the business world in this country, is fraught with all the defective elements of our much-vaunted social life. With an enthusiasm which we claim as our own by right of a new civilization founded on the easy and ready possibilities of acquiring money, we have developed among us a monomania which can best be described by using the term of the older school of French alienists—La Monomanie Ambitieuse. True, the French alienists applied the term to those men and women whose idée fixe was regicidal; but since American society is a leveler of all things, flagrantly democratic in its abhorrence of men of power who by their strength might grow into personalities of kingly supremacy, the term is expressive enough to use as the obsession of all Americans who are ambitious to increase their wealth.

Every monomania has for its ultimate results a weakening of the mental powers; for though in its incipiency a fixed idea may have only the good qualities of the purposeful, ere long judgment, stability, and equilibrium are swamped. Therefore we see that the mental stamina which alone are the ballast of the individual, are often so decidedly honeycombed by the one large idea involved in the pursuit of the probable-attainable, that when they are really needed in times of great upheavals, they fail dismally. Hence, flouting of the gifts which are ours to conserve—despair and suicide.

The normality of a society must be formed of other elements than obtain with us today. Ambition is well in its way; but to class it among the good qualities of a nation, the physical and mental health must be of a vigor to withstand its nefarious inroads. The history of our sociology in the last decade shows unmistakably that as yet the intellect of the American people is not of sufficient strength to keep pace with their overpowering ambition, and not until a complete equalization between the two takes place will society show, in its statistics, the beneficial attributes of the latter.

In attacking the problem of the physical and mental health of society, its outward signs of blatancy and grandiloquency should not blind us to the slow process of disintegration that a monomania begets. The meretricious has always been our besetting sin, and every encouragement it receives closes the chapter, containing the true state of the minds of the distracted, from our view. As philosophers in the province of medicine, it is our duty not to be in accord with the philosopher in the street, who is always shouting that isolated cases of mental shock are characteristic of American society.

CREMATION.

The term, sanitation, so easy of pronunciation and so effective as a scientific ingredient of our otherwise prosaic conversation, is constantly on our tongue's end when the humanities, which are supposed to influence the medical mind continually, are under discussion. In fact, the frequency with which we apply the term to the many uncorrected abuses stubborn of correction, must lead the laity to imagine that the more recalcitrant the subject, the greater our enthusiasm, and that a sanitary reform to be effective needs the concentration of many thinking medical men. Now though it be a fact that some reforms which have been made were undoubtedly the result of the combined mental forces of many men, this sort of allied concentration, while it has its virtues, has also its defects; for the centering of many minds on the correction of an abuse, especially when it is not spiritual but mundane as instanced in sanitation, blinds us to the needs of enlightenment of a decidedly positive sort on certain matters, which, though not so evident as house- and street sanitation, are nevertheless of prime importance. And of all matters which should engage our earnest attention—that is the scientific thought of the medical men, so that the right sort of instruction may be given to thinking and unthinking men and women—cremation is not the least worthy of a lengthened consideration.

That the subject of cremation is again receiving the attention it deserves, especially now that it is somewhat of a neglected quantity in the world of medical thought, should convince us that its purpose for good has really not been lost sight of, and that so long as men of Dr. J. Woodward Riley's mental calibre engage in an honest warfare in its behalf, the prejudices which befog the intelligence of physicians and laics alike, will, ere long, be brushed away and the great and sane advantages of the procedure made apparent. Just why we look upon Dr. Riley as capable of dealing out the right sort of fillip to the subject is made clear to anyone of ordinary intelligence directly upon reading the "Address On Cremation," delivered before the Shropshire and Mid-Wales Branch, October 8th, 1907; and although this particular address was especially prepared for an English audience, its message, as proclaimed by this man of light and leading, has enough vitality to make it effective with American readers. And surely we are not such intellectual giants that we can in all honesty say no lesson is needed by us on the subject of cremation. For with us its appeal is limited still to a small number of persons who are not only criticized but, to a certain extent, shunned for having "advanced ideas."

A survey of what has been accomplished in this country as to the adoption of a procedure which is humane and so far removed from the sickening and loathsome features of the usual form of burial that to place them in the same category were folly, is not of such proportions that any exultation need characterize our attitude. Religious prejudices; ignorance as to the slow processes of disintegration; or worse still, a disbelief that the body ever decays, founded on a materialism that is flown with all the raptures of an exaggerated idealism; an utter disregard of the problems of sanitation as they pertain to burying-grounds; are so many obstacles in the way of a thorough understanding of the benefits that would accrue, were the people to realize the exigency of cremation. And though the majority of us no longer believe in the materialistic reunion of the dead, the quick destruction of matter, as effected by the burning bodies, is met with derision; for the reason, we suppose, that the suddenness of the change is not in consonance with a sentiment which tolerates the slow process of putrefaction and even the burying of those who have died from infectious diseases such as diphtheria, scarlatina, variola, tuberculous diseases, etc.

Upon whom, then, does the duty of disseminating the good points of cremation devolve? The lay advocates may by suasion of speech accomplish the bringing about of attention to the subject; they may make the glass through which it has been heretofore viewed less dark so that the ordinary intelligence will be moved by a temporary wave of enthusiasm; but not until the medical profession grasps the full purport of its sanitary meaning, and then preaches its best tenets among the people, shall the balked thought of the few enthusiasts of today, grow into that condition of emancipated and gratified fruition which would mean a greater degree of health for the living.

OPINION AND CRITICISM.

A CHIP FROM AN INDIAN WORKSHOP.

That the Americans are not the only frenetic disciples of over-work is made apparent to us in an article by Captain H. A. J. Gidney, I. M. S., recently published in the *Indian Medical Gazette*. On September 25th last, Captain Gidney, undesirous of achieving a record but not unwilling to attend to his professional duties, proceeded to an outlying village, some 20 miles from his station, and commenced work at 8 A. M. Not being well-informed as to the vagaries of human nature in the Orient or the effect of climate on the nerves, we are not in a position to say just how Captain Gidney felt at this early hour, but judging from the 61 operations performed and the glittering results which followed (60 were entirely successful), we are surely justified in saying that if ever he was in prime condition it undoubtedly was on the morning of September 25th, 1907. Any man who can make 52 extractions of senile cataracts; 6 extractions of congenital cataracts; 2 iridectomies; and remove one pterygium, between the hours of eight in the morning and four in the afternoon, with but half an hour's interval for lunch, is deserving of more than passing mention. Herakles in his twelve labors, Jason in search of the Golden Fleece, Sigurd in pursuit of the treasure, are mythological instances of strenuosity that have often excited our wonder, if not our envy; Balzac writing "César Birotteau" in a fortnight and George Sand making "copy" from early morning until late at night, have invited our admiration; but it has remained for Captain Gidney, on account of these 61 delicate operations, to make us feel like "selfish, worthless human slugs, whose slime has failed to lubricate their path in life."

SOME WISE REMARKS ON SLEEP AND SLEEPLESSNESS.

Latterly the subject of sleep and sleeplessness has engaged the attention of many investigators; and though the observations set down in cold print, and the theories propounded for the induction of sleep and the destruction of sleeplessness, have often been of a tenor to excite our risibilities, the weighty words of Dr. Alexander Morison in his lecture "Sleep and Sleeplessness," printed in the *Lancet*, February 8th, should obliterate any impression our former readings of superficially-conceived articles have made on us. Most of the writers who have dabbled in the subject have thought fit to mention only the most extraordinary causes as provocative—in fact, the tendency seems to be to go far afield in search of hitherto undiscovered reasons; but as happens only too often

when enthusiasm is misdirected, the results achieved, as to enlightenment and instructiveness, have all the defects of faulty ratiocination. Now Dr. Morison does not belong to the ilk of investigators who are continually inviting our criticisms; on the contrary, by reason of a mental clarity most commendable, he gets at the underlying elements in our nature which surely must be responsible for those deviations from the normal, illustrated in the lack of the proper amount of sleep conducive to health. By underlying elements we mean heredity and temperament: those bugbears of the unphilosophic medical practitioner but all the same the most important factors when the etiology of a much-discussed derangement, such as sleeplessness, is made a matter of inquiry by the thoughtful man. "Satisfaction is rest; dissatisfaction is unrest or continued stimulation," says the author, and with this thought in mind it is easy to comprehend why a satisfied state, the outcome of hereditary and temperamental traits in a fairly intelligent man, should have for its complement, sleep or its synonym unconsciousness; and on the other hand, a dissatisfied condition, also the result of heredity and temperament, and characteristic of poets, artists and neurotics, "possessors of powers of rapid perception, rumination, and expression,"—sleeplessness or consciousness. Thus we see that intellectualism is often the sworn enemy of the greatest balm in the gift of Nature.

A MATTER OF DIET.

In the address on the "Personal Factor in Diet," which Dr. Charles Macalister delivered before the Liverpool (Eng.) Medical Institution on Oct. 24th, 1907, we note many excellences which should sink deep into the varied and ingenious intellects of the small army of American medical writers, who have been guilty of many extravagances on the much-harassed subject of dietetics. Tennyson, speaking of Ben Jonson, said: "To me he appears to move in a sea of glue," and though the rapidity with which our writers arrive at wrong conclusions based on false premises, precludes any idea of slow movements, the progress towards illumination is of so minimum a character that nothing short of the intervention of "a sea of glue" can be held responsible. Dr. Macalister's verbal simplicity—an object lesson, by the way, for many of our medical literary dilettanti—is the means of presenting his arguments with force and dignity, and, we may add, in their proper light; but mere felicity of phrase is not wholly responsible for this, for behind it we find the right sort of thinker—a blend of scientist and practical observer. To instance what we mean, the following quotations should suffice: "And, furthermore, we can not help observing that whereas one person will live mainly upon proteid-containing vegetables, together with starches

and fats but very little meat, another regards the beefsteak as the foundation of strength and looks with compassion and concern upon his brother who can not or does not take it. Whoever wrote the old nursery rhyme—'Jack Spratt could eat no fat, his wife could eat no lean'—evidently recognized the personal factor in diet which is the subject of my remarks on this occasion, and I have no doubt that the writer of the rhyme also recognized that, although so different in their dietetic tastes and requirements, Jack and his wife were both perfectly healthy individuals," and, "there are those who can not take the purin-containing group of foods, such as meat, tea, coffee and cocoa, without suffering, but in reality this depends upon a metabolic idiosyncracy or an idiosyncracy of elimination." The more one thinks of these citations, the more is one convinced of their absolute truth. The whole history of the human race, and this, of course, is taking into consideration only a very minor matter, shows conclusively that idiosyncracy must be of paramount importance in the preservation of health, otherwise there would be most distressful days followed, at short intervals, by death, for gourmets and gourmands. That the latter specimen of the human species, though always voracious when food is set before him, is fortunately protected by certain dietary prejudices, is clear to anyone who has taken the time to study the Gargantuan appetities of our English ancestors. If this were not the case, there would be no way of explaining the manner of even a short survival after the usual meal in the early forties of the nineteenth century. No better illustration of the verity of this can be found than in the now almost forgotten volume, "Jorrock's Jaunts and Jollities," by R. S. Surtees, published in London in 1843. "The whole dinner," says the author, "first, second, third, fourth course,—everything, in fact, except dessert,—was on the table, as we sometimes see it at ordinaries and public dinners. Before Mr. and Mrs. Jorrocks were two great tureens of mock turtle soup, each capable of holding a gallon, and both full up to the brim. Then there were two sorts of fish, turbot and lobster sauce, and a great salmon. A round of boiled beef and an immense piece of roast occupied the rear of these, ready to march on the disappearance of the fish and soup—and behind the walls formed by the beef of Old England, came two dishes of grouse, each dish holding three brace. The side dishes consisted of a calf's head hashed, a leg of mutton, chickens, ducks, and mountains of vegetables; and round the windmill were plum puddings, tarts, jellies, pies and puffs."

LITERARY NOTES.

The personal in literature is again evidenced in a new book, "The Confession of a Medical Man," recently published by the Macmillan Company. "Confessions" have an interest of their own, and whether they be optimistic or pessimistic, the general reader is avid of their contents; therefore, any book bearing the seductive title is sure to have its readers. The book under consideration has many good points in its favor; it is written with rare honesty, has literary merit and its tone is always the opposite of depressing. As medical men we ought to rejoice in the last quality, for a similar work, "Bekenntnisse eines Arztes," by W. Weressajew, published some six years ago in Germany, gave the gloomiest sort of picture of a medical man with decided neurasthenic imperfections. The anonymity of the Macmillan publication should not condemn it or deprive it of a cordial reception on the part of those who admire courage; for the obliteration of one's name from the title page of a "Confession," is not so much an act of cowardice as a protest against future historians and biographers using the material for further inquiries into the physical and mental defects of the writer. We are prompted to say this on account of a paper, "La Maladie de Jean-Jacques Rousseau, d'après des documents récents," by M. Antonin Poncet in collaboration with M. René Leriche, which was recently read at a meeting of the Académie de Médecine. "Rousseau had a congenital stricture of the urethra and instead of regarding him as a psychasthenic 'carrying his bladder in his head' (portant sa vessie dans la tête), we should think of him as one whose many bizarre notions, crotchets and madness were aggravated, if not produced, by his urinary troubles—his prolonged dysuria," are words of his latest critics. That the candor and wickedness of the Genevan philosopher, facts which roused the ire of William Blake in the well-known lines: "Mock on, Mock on, Voltaire, Rousseau; Mock on, Mock on; 'tis all in vain!" can be explained on the grounds of "urinary troubles dating from an early age; habitual incomplete retention; incontinence and micturition on account of a distended bladder," is truly unfortunate for a writer, who overlooked so important a matter as anonymity, when preparing his "Confessions" for the world.

A book recently presented to the Académie de Médecine, bears the title "Les Névrosés de l'Histoire" (The Neurotics in History), and has for its progenitor, Dr. Lucien Nass. Anecdotic history has never been more popular with doctors than at present; hence they are able to understand the determinism of man's actions and ascertain their direct de-

pendence on the state of our organs, and their relation to influences in our surroundings. To reconstruct a picture of the physical and psychological characteristics of personages of former epochs, are not the best documents the so-called trivial details revealed in the anecdotes of eye-witnesses? Granted that this is true, and adding thereto a natural curiosity on the part of the medical public, it is easy to understand why medico-historic studies have many fervent admirers among the medical men. Dr. Lucien Nass's book appeals alike to the student and to him who has a curiosity to satisfy. Among the number of discriminating anecdotes characterized by deep interest, liveliness and diversion, the medical man who has applied himself to the study of degeneration and psychopathy will find much that will interest him. The lives of the last Valois and of the descendants of Charles V. are easy of comprehension when their physical and psychic defects are made clear. The exercise of absolute power, always a source of danger to the mentality of man, produces, in case there is degeneration, a typical neurosis, the neurosis of royal personages. This royal mental disturbance (la maladie du trône), or Cæserism, as it has been called by Prof. Lacassagne, attacks the mind of a monarch at its weakest point; and according to the dominant congenital defects, takes the form of sadism as in Charles IX., fanaticism as in Philip II., or megalomania as in Louis XIV. Instead of commanding their subjects, as was generally believed by them, and by the subjects themselves, these potentates were mere vassals as regards real power; and even their passions, their vices, not to mention their virtues, were not their own but a matter of heredity. As to the history of those other sovereigns, the princes of the faith or of popular credulity—the false Messiahs, the Joans of Arc and the Dauphins—they are expressions of a neurosis peculiar to a high state of romanticism which has recently been called, mythomania. Were these neuroses confined to monarchs and visionaries, their importance would not be of grave moment but unfortunately in many epochs, if not in all, individual passions soon become social and affect all walks of society. The Italian Renaissance, with its mixture of the cult of the beautiful, the passion for luxury and barbaric cruelty, furnishes a case in point, and shows, only too plainly, that the spirit of the times, whether medieval or modern, is affected by degenerating influences.

ORIGINAL ARTICLES.

SOME MECHANICAL PROBLEMS OF THE CIRCULATION AND THEIR SOLUTION.*

By Joseph Eichberg, M. D., of Cincinnati, Ohio.

The tendency of the present age in medicine is found in the endeavor to reduce all things to the physical basis; hence, the pre-eminence given both in physiologic and clinical work to the result of all forms of laboratory investigation, and hence the laudable effort to introduce instruments of precision into the study of phenomena previously imperfectly estimated or wholly misunderstood. To this effort we owe the ophthalmoscope, the measurement of errors of refraction with test glasses, the perimeter for the field of vision, the prism for testing the balance of ocular muscles, the determination of the gastric acidity, the increasing application of the chemistry of the secretions to the study of the problems of nutrition, both under normal and abnormal conditions, and the various devices introduced but recently for the better knowledge of the circulation. It is an era of the application of physical science to the elucidation of disease. For the most part, the expedients proposed have been devised more particularly for testing the physiologic function of the part concerned, and the valuable clinical facts have been established incidentally.

Curiously enough, the circulation of the blood was among the last to be included in this practical study on a precise basis. In our early medical education we were sufficiently impressed with the value of the *tactus eruditus*, that educated touch, only to be acquired after long experience, which should enable us to promptly recognize in the pulse at the wrist all the factors that make it so valuable a sign; its frequency, its regularity or otherwise, its quality of fullness or the contrary, the character and compressibility of the arterial walls, whether it be quick or slow—attributes easily separable from its frequency—its occasional appearance as a *pulsus paradoxus*, its correspondence or not with the apex beat of the heart, its exact synchronism and equality on the two sides. The value of this information when accurately observed, can hardly be overestimated; yet there was a demand for something more, a mathematical basis, which should place the interpretation of the symptoms beyond the chance always incidental to the personal equation of the particular observer. This desire had come as a logical consequence of the improved knowledge of arterial disease. The pioneer studies of Gull and Sutton had promptly arrested the attention of the entire profession; and the importance of arterial changes as a factor in the seemingly more serious, and usually more evident, heart trouble has gradually es-

*Read before the Mitchell District Medical Society, Oct. 20, 1907.

tablished itself as a clinical and a pathologic fact. It remained for the last few years to give us a uniform basis of measurement, and truly, both a standard for health and a means of comparison.

Primarily, the office of the circulation may be considered as mechanical, the problem being to distribute a certain mass of fluid, of fairly uniform consistency, regularly and frequently throughout the arterial distribution, with sufficient momentum to insure its return to the starting point. It is scarcely necessary to advert to the wonderful arrangement which insures the automatism of the circulation as a whole, beginning with the rhythmical action of the isolated heart fibre and extending to the farthest distribution of the vaso-motor system; nor need I remind you that these safeguarding devices not only protect the delicate glandular structure from shock or pressure by the recurring impulse of arterial distension, but also provide for every tissue in the body a supply always adequate to its nutrition, increasing or diminishing as its function is more or less actively performed.

Viewed, however, as a purely mechanical problem the considerations which underlie it have reference to the three factors that govern every application of energy, namely, the power, the weight and the resistance, the latter including all the factors which directly or indirectly retard the result.

The first subject to engage our attention, is the *power;* we have here to estimate but a single quantity, the muscular force of the heart's contraction. The heart is the force-pump of the circulation; its chief motive power. By virtue of its nervous connections, it is enabled most admirably to adjust itself to the needs of the economy under conditions the most diverse, proportioning the number of its beats to the muscular activity, the body temperature, the mental state, the presence of toxic substances in the blood, etc.; and it is probably through the same agency that it proportions the force of its contraction to the resistance to be overcome.

With reference to the marvelous facility of the mechanism for accommodation and regulation of the actual work of the heart, see the admirable description in the opening chapter of Krehl's work on pathological physiology. The volume of the right side of the heart may be increased six-fold under sudden increase of strain, and this condition is still compatible with a normal organ. In accommodating itself, the power of the heart depends on an intrinsic property of the muscle fibre. No time is given for reflex action. Increase of strain is followed immediately by increase of power in contraction, and then by increased velocity of the outgoing wave.

For practical purposes the *weight* may be considered as fairly constant; the circulation representing the movement of a definite quantity of fluid in a series of closed canals, which, nowhere affording any exit, must, of necessity, maintain the mass of liquid at about the same figure; yet every meal adds to the quantity of blood through absorption, and the processes of excretion and secretion as incessantly abstract from its volume. Moreover, though the quantity of blood may remain the same, its distribution is subject to hourly fluctuations; at one time the volume

of blood is greater in the voluntary muscles, at another in the splanchnic distribution; in the former case, the active arterial supply increases with corresponding increase in the work of the heart; in the latter the accumulation takes place in large venous trunks, so large, that it has been estimated that the entire quantity of blood in the body can find accommodation in the abdominal cavity; this unburdening of the general circulation, even while the quantity of blood remains the same, means a lowered arterial pressure with diminished work of the heart. These considerations will receive mention later, and may be momentarily dismissed as being related to variable and usually transient conditions.

The other constant factor is found in the arterial *resistance,* a resistance which increases steadily from the center of the circulation to the periphery, both because of the widening out of the arterial distribution, and because of the increasing quantity of muscular tissue in the arterial wall as we remove farther from the heart. The large vessels near the heart have walls made up very largely of elastic tissue; this grows less and less as the caliber of the vessel diminishes. Now the measure of the interaction of the two main factors, the power and the resistance is found in the arterial tension, which has been defined as that degree of force with which the blood is constantly endeavoring to leave the arterial wall. The arterial tension may be increased by undue action of the heart, either from actual hypertrophy of the heart wall, or from undue, excessive contraction of the normal wall, frequently determined by reflex nervous influence; or it may be increased with perfectly normal action of the heart, by reason of diminished elasticity, or increased rigidity, or actual thickening of the arterial wall, whereby the lumen is reduced.

Post-mortem examinations are constantly showing the interdependence of all these factors, either of which may primarily cause the trouble, but very soon brings the others in its train. It is not our province here to enter into a discussion of the question as to which in the individual instance may be the primary lesion, though, as will appear, the early recognition of this important fact has a most important bearing on the treatment, and on the time for its adoption. We can no longer regard the vessels merely as a set of conduits; every artery is a miniature contractile heart, an auxiliary force of the circulation.

Conversely the arterial tension may be reduced by diminished power of the heart; there is no known condition of the arterial wall, which enables the arterial resistance to be diminished from that side, but tension may be reduced by simultaneous action of the vaso-dilators over large areas of distribution.

For us, as practicing physicians, the important point is to possess some means of arriving accurately and promptly at the determination of the amount of work being performed by the heart under usual and abnormal conditions. The various forms of registering apparatus, more or less improved upon the original design of Marey, have the desirable quality of rendering visible and tangible the variations in pressure to which the *instrument* is subjected, but *not necessarily* the variations in

pressure on the inside of the artery. Indeed there are so many sources of error in the ordinary sphygmogram, that not the most experienced would dare to say from the mere inspection of the tracing what the exact departure from the normal might be. Add to this that a good sphygmograph is costly, that it requires very careful adjustment and much time to each tracing, and there is reason sufficient why this instrument has not found very general usage.

The whole study of the subject has entered upon a new phase with the introduction of the Riva-Rocci sphygmomanometer. In the early experiments of Hales, the pressure within the arteries was experimentally determined in animals by dividing an artery, and connecting the severed central and peripheral ends directly with a mercurial manometer. In the human subject this was of course impossible, and it was the ingenious device of Riva-Rocci which first supplied us with a substitute. Acting on the easily understood principle, that a certain pressure within the artery could only be overcome by a corresponding pressure on the outside of its wall, he devised his now well-known instrument; consisting of an elastic bulb, connected by means of elastic tubing with a slightly elastic cuff applied around the arm above the elbow, the air within the cuff communicating with a mercurial manometer, on which the pressure was read off in millimeters of mercury. After careful adjustment of the apparatus, the patient was so seated or arranged that the position of the cuff should bring it into the same horizontal plane with the heart; and the examiner then with one hand took the pulse of the arm carrying the cuff, while with the other air was pumped into the cuff until the pulse at the wrist disappeared. The amount of pressure necessary to bring this about was read off on the manometer scale, as also the level at which the pulse was again detected. The necessary apparatus is exceedingly simple, can be transported without much difficulty, and, if rather crude, has still given tangible results.

The imperfections of the apparatus lie largely in the fact that a certain hurling, oscillatory movement is always communicated to the mercurial column by the necessity for rapidly and frequently compressing the bulb, which makes the resulting level of the mercury an approximate rather than an absolute one; 2nd, that the volume of air in the various sections of the elastic apparatus may not instantly distribute the pressure uniformly; 3rd, that the elastic air cushion is often so large that it interferes with the satisfactory application of the pressure; and 4th, the inertia of the mercurial column.

A new instrument devised by Von Recklinghausen, of Strassburg, seems to overcome these objections. The mercurial column is done away with entirely—a manifest advantage—as some of the pressure in the cuff was always needed to lift the actual weight of the mercury, and could not be ascribed to the arterial pressure. The principle of the cuff is still maintained, but the cuff is made very broad, relatively inelastic, and the quantity of air in the apparatus reduced to a minimum. The bulb is replaced by a pump, with a most ingenious arrangement of levers, easily controlled by the hand that is making pressure, whereby the

degree of the latter is at all times capable of any desired change; the pressure is made uniformly, by forcing the piston down, and the amount of this pressure is marked by a needle on a scale graduated in centimeters of water. The needle is very delicately mounted, and movement is imparted to it through the intermediate action of a curved metal tube whose curve is steadily flattened as the pressure increases. Individual variations in the instruments are corrected by a series of observations made by the manufacturer before the instruments leave the shop; and the margin of error of such instruments is so small that it is less than one-half of one per cent. The instrument is really more easily portable than the Riva-Rocci apparatus, is much less fragile and need only be protected from sudden jars and direct violence, which might alter the parallelism of the planes and thus distort the readings. A certain degree of familiarity with the instrument can only be acquired by experience, and frequent observations on the normal pulse should always precede any endeavor to apply it to clinical uses. The eye must be trained to quick reading of the scale, and the finger also schooled by earnest attention to detect the first indication of the pulse. In using the tonometer of Recklinghausen the pressure is at once carried to the point where the pulse is obliterated; and the reading noted, as the air is allowed slowly to escape, at the point where the needle shows a large oscillation—corresponding with the minimum arterial—or diastolic pressure, which, as experience has shown, is more uniformly accurate than the maximum pressure.

As pointed out by Recklinghausen this method need not depend in any sense on the taking of the pulse. Accuracy can be secured by merely observing the oscillation of the needle, which is fairly wide up to the point where the pulse disappears, when it immediately becomes very much smaller. He suggests that this might very properly be termed the oscillatory method in contradistinction to the method by palpation. It requires no elucidation to show how much more reliable would be the visible movement of the needle, than the disappearance of the pulse, as judged by different observers—where greater delicacy of touch, a better ability to concentrate the attention, the greater thickness of the tissues overlying the artery, perhaps an anomalous distribution of the artery, all might materially modify the result.

No mention has been made of the electro-cardiograph, first devised by Einthoven and then modified by Nicolai and Kraus; by which the action of the heart is supposed to produce electro-magnetic currents, positive at the base and negative at the apex of the heart, which can be conducted away from the right and left arms respectively, and then photographed by means of the magnified variations of an exceedingly fine platinum thread interposed between the poles of a powerful electro-magnet. The variations of these currents produce vibrations in the needle, and the currents themselves change in relative intensity with the alternate contraction and dilatation of auricles and ventricles. Nicolai and Kraus in a recent publication (No. 25 and 26 *Berl. Klin. Woch.*, 1907), claim for this method great diagnostic value, the special

advantage being that varying physiologic conditions—as increase or decrease of frequency in the pulse, change of position, forced respiration, etc., do not in any sense modify the normal picture, so that a distinct change can only be construed as irrefutable evidence of a pathologic condition. The apparatus can never find wider application because of its great cost, and somewhat complicated technique.

At no time can we lose sight of the fact that the individual normal arterial pressure, proper to the individual, is as much a personal feature, as traits of countenance, percentage acidity of the gastric juice, or frequency of the pulse beat. A pulse of 60 is normal for one healthy individual, of 82 for another, of 96 for the third, yet we speak of 72 as the normal pulse rate; and any manifest departure from this average, if not otherwise explainable, at once arrests attention and calls for repeated observation of the individual under varying conditions, to ascertain the cause of the change; thus, too, we have established a basis of normal acidity for the gastric juice, within certain limits; yet we know that those limits are often passed in perfectly healthy individuals, so that some men have introduced the paradoxical term of a normal hyperacidity; and we also know that for the same individual the relative percentage of acid, even after test meals, is not always the same. This was a result that might have been expected; and we must be careful in interpreting the results of the study of arterial tension not to establish a too arbitrary standard, and to make proper allowance for the individual variation. If we pursue this course, much is to be learnt from a constant interrogation of the arterial tension.

One of the most important changes in this tension occurs in arteriosclerosis. Arteriosclerosis, as we now recognize it, is perceived as a pathologic condition only at the time when the lesions are, as it were, macroscopic; when we see the hemorrhages into the retina, or feel the tortuous, incompressible artery at the wrist, or find the patient with the nocturnal neuralgia of the extremities, or with angina pectoris, or note the tendency to gangrene of the foot, or else recognize the process by the appearance of polyuria, occasional traces of albumin, etc. At such a time all that we can hope to do for the patient limits itself to the retardation of further change, and the adaptation of his daily life to the greatly diminished sphere of activity that is yet possible. How manifestly greater our possible usefulness, if we could detect the earliest beginnings of the disease, and, thereby not only prevent its farther advance, while the process is yet microscopic, but also give the chance, as happens with so many other tissues, of a complete restoration to the normal, provided the exciting cause be removed!

It might seem, that it would be a matter of some difficulty to distinguish, even in a case of definitely increased arterial pressure, whether the heart or the arteries were the more at fault; the discrimination is, however, easily made. We will assume that the physician can readily recognize the presence of valvular lesions or muscular change in the heart walls, or of arterial change possibly compromising the coronary vessels. The problem still remains to determine how great the power

of resistance in the heart despite valvular defect, or damaged myocardium, or of inelastic or thickened arteries; because it is this which determines the particular method of therapeutic aid we may desire to render. We have a convenient term, expressive and accurate, when we speak of the *degree of compensation*. Despite all handicaps, a compensated lesion is compatible with a fairly long and useful life; here, too, the problem is the early determination of the latent element of weakness, which is surely, if insidiously, making inroads on the reserve power of the heart.

It is no less important that we should have some means of recognizing the purely functional disturbances of the heart as such. They represent a large class, and form a most important contingent of those affections which come under daily notice. They easily counterfeit the early stages of myocarditis, and their recognition as distinct neuroses is therefore of the utmost importance.

We will admit that a heart, slightly damaged, may still be adequate to the ordinary routine work, but is certain to betray its impaired condition when any added strain is imposed. All that is necessary is therefore some measureable mechanical work by which we arrive at a conclusion, first formulated by Gräupner (*Die Messung der Herzkraft*) that "so long as an individual can perform a certain amount of measured labor, and so long as this work leads to the training and improvement of the heart's work, so long the measure of work performed remains within the individual capacity and power of adaptation."

What is "training?" By training we mean that process by which, under the influence of nervous reflex action, any unusual bodily effort no longer produces a disproportionate excitability in the heart and arteries. Practice or training reduces the extent of the rise in frequency of the heart's action following exercise, and also enables the heart to return promptly to the normal, after a brief interval of rest; at the same time moderate exercise of the heart as of other muscles, stimulates the nutrition. This presupposes a healthy muscle, to begin with; and we must be careful not to impose the test upon a weak muscle, either weakened by hereditary causes, or by disease—such as occurs in or after febrile processes, or wasting conditions. It was customary to argue an improvement, if the exercise was followed by diminution of heart dullness, but there may be increase of dullness with improved functional activity and conversely, diminution of precordial dullness frequently follows from simple cutaneous irritation, though the actual work is diminished. If the heart is really benefited by training, this is also shown by an improvement in the arterial tension.

Now, increase of work over and above the amount suitable to the individual will be followed by weakness rather than improvement, so that the greatest yield of heart and artery work with a given amount of mechanical work, is spoken of as the individual adaptation. Increase of the work above this individual adaptability will be followed by increased pulse frequency, by tardy return to the normal quiet beat, and by a diminution in arterial tension; even after repose the pulse remains small and weak. Now this is a purely physiologic process, a physiologic

insufficiency, and the difference between the healthy and diseased heart is a difference of degree.

The necessity for rest is imposed upon the heart after muscular effort, firstly because, by means of its own increased effort, organic poisons have been generated within its own substance -and secondly, because with increased tension the work of the heart to maintain the circulation has been increased, and thirdly, because the relatively larger volume of blood in the exercised muscle imposes changed conditions upon the circulation. Increase of tension in the aorta leads to increase of work of the heart; but only up to a certain point, after which the actual work of the heart diminishes with farther increase of arterial tension. When, now, the arterial tension falls, the work (the word work is here used in the sense of actual labor done—not as an assigned duty) of the heart again increases; thus an improvement in what we may term the yield of the heart follows a lowering of arterial resistance as a regular physiologic process. These facts are attested both by experiments upon animals and by clinical experience.

Gräupner calls particular attention to this circumstance, that a period of rest following great muscular effort is attended by a short period of increased arterial tension, during which the pulse is felt in a condition of extreme tension and fullness; the tension at first being lowered, then much increased, before returning to the normal, as a physiologic process; and construes this as a process most favorable to the improved nutrition of the heart muscle itself, maximal diastole with unusual filling of the coronary arteries; a process of restoration. When such changes do not occur, the functional energy of the heart gets worse and if the individual is denied the opportunity of rest, the effects of overexertion will not be slow to manifest themselves. Now the *energy and rapidity with which this process of restoration takes place is the direct measure of the power of resistance of the heart;* the weaker the process, the more tardy its appearance, the feebler the myocardium. Though the arm feel no fatigue, if this be the part tested, the insufficiency soon shows itself, if the heart be damaged; and conversely, the arm may grow tired, though the heart show a perfectly normal condition. Gräupner claims that experience with this test will enable one to determine without auscultation and percussion, whether hypertrophy, myocarditis, valvular defect, or purely functional trouble is concerned in the particular case, or how far myocarditis may be coupled with a neurosis.

Particularly important is the possible recognition of latent change in the myocardium, that is to say, the earliest period of pathologic change. Now the power of the heart is made up of two factors, the restorative or recuperative power, and the training adaptability, and the power increases with increase in each of these qualities; the recuperative power sinks with every impairment of nutrition, whether due to general nutritive disturbance, or to toxic agencies, as alcohol, nicotine, or excessive content of carbonic gas in the blood, or accumulation of waste products from excessive exercise. The greatest impairment follows arteriosclerosis of the coronary arteries of such degree as to affect a large part of the

myocardium. Arterial change of less degree may lead to disseminated foci of degeneration without seriously embarrassing the organ as a whole.

Increased arterial resistance as a cause of diminished heart power manifests itself by a *diminished adaptability while the recuperative power may be very good.* Whenever the recuperative power is good we must assume the existence of a normal myocardium, even though the actual work of the heart be below normal. On the other hand, the diminution of recuperative power, even in the presence of cardiac hypertrophy, forces the conclusion of latent myocarditis. This may serve to explain the cases reported by Kraus of fatal chloroform narcosis in persons with a good pulse, while others with a clinically bad pulse go through it very well.

For testing the heart function the estimation of the blood pressure is of the greatest value. Contradictory results are due to the fact that many observers rest content with one or two observations. From what has preceded, it must be apparent that after any effort, sufficient to affect the circulation, there comes first a period of depression, then one of increased tension, after which the heart returns to the normal. It is therefore only possible to determine the actual normal tension when observations, repeated for some time, give a uniform result. So long as the tension remains high after any given work, or returns to the normal and remains there, so long that amount of work may be considered as within the training capacity of the individual. The insufficiency already mentioned as physiologic becomes pathologic when the tension remains below normal for a long time, or does not return to the normal, or does not pass into the phase of increased tension. A sudden drop in blood pressure after the phase of increased tension is due to overexertion or exhaustion. A difference in the functional capacity of the right and left ventricle, a disturbance of the normal balance, is indicated for the left ventricle by a more decided functional weakness in the standing than in the recumbent position; for the right side the weakness is more apparent in the recumbent posture, because the volume of blood entering the right side is greater in lying than in the erect position, and because then the right heart receives less assistance from the respiratory excursion of the thorax. Whatever the explanation, it is certain that disturbances of compensation affecting the right heart are attended with orthopnea as a frequent symptom.

This method of testing the resistance work is manifestly inapplicable when other indications have convinced us of the absolute weakness or inefficiency of the heart, or in such arterial disease as aortic aneurysm. For the purpose of making such tests special instruments known as ergometers have been devised, but a simple system of weights and pulleys will answer very well. I have recently used for this test the simple expedient of having the patient walk rapidly up two flights of stairs; the results have been very satisfactory. The suggestion for using this form of exercise was first made by Cabot.

As regards the arterial resistance, we must include with this not only the arteries themselves, but the great volume of the capillaries, which,

as Stricker showed in 1866, are distinctly contractile, can respond to electric stimulation and consequently represent an important agency in the regulation of blood pressure.

Next to the heart itself, it would seem that the most important role is played by the splanchnic nerves. From the studies of Ludwig and Thiry, and of M. and E. Cyon, it appears that, with the heart completely isolated from all nervous connections, irritation of the peripheral end of the divided spinal cord is followed by a marked increase of blood pressure, which, however, fails to manifest itself if the splanchnic is first divided. The increase of general blood pressure is due to contraction of the abdominal vessels through the splanchnic connection; experiments of Goltz have also shown that in pithed and decapitated frogs the circulation speedily ceases, from over-distension of all the abdominal vessels; the animal bleeds to death in its own splanchnic distribution; and the agency of the depressor nerve of the circulation has been shown by Ludwig and Cyon to be due to the dilatation of the abdominal vessels. Asp, in Ludwig's laboratory, showed that the arterial tension may be increased over 100 per cent by irritation of the peripheral end of the divided splanchnic, through contraction of the abdominal vessels; more important, however, was his experiment, that irritation of the central end was also followed by increased blood pressure, the increase being greater than from the peripheral end; in this case the impulse must manifestly be conveyed through reflex paths.

The blood pressure in the human arterial system was measured by Faivre, in 1856, on the femoral artery after amputation, and found to be 120 m.m. of mercury, in the brachial 110 m.m. Albert, in 1882, in the anterior tibial found a pressure of 100-160 m.m. Federn, in Vienna, gives a mean pressure of 100 in the radial as normal, and considers everything above this as suspicious. He also regards the absence of cardiac asthma in cases of increased blood pressure as pointing to the increased functional power of the heart as the responsible factor, rather than to an implication of the arteries. Increased tension due to increased resistance is attested by the absence of hypertrophy, or by small pulse and cardiac asthma even in the presence of hypertrophy.

He also asserts that the symptoms accompanying increased tension from increased resistance are different in younger and older subjects. Of such as are found in younger subjects may be mentioned transient and recurrent diarrhoea, headache, diminished capacity for work, disturbed sleep, mental depression, occasionally migraine.

In old patients we may have the same symptoms, but oftener there is a feeling of heaviness and pressure in the head, vertigo, especially likely to come on with change of position, a feeling of congestion in the head when stooping, a tendency to light asthmatic attacks; if to the increased tension there be added a febrile disturbance, the symptoms of the latter are rendered much graver with every increase of blood pressure.

Federn would make almost every form of neurasthenia depend upon increased blood pressure, for which he finds a starting point in reflex impulses passing from the abdominal cavity, and affecting the general

circulation through the agency of the splanchnic. The evidence of this increase of blood pressure is often furnished by urinary changes, increase of uric acid, the transient appearance of sugar or albumen; these were formerly attributed to the nervous agency, but the nervous disturbance, like the altered chemical condition, is the result of the increased blood pressure, which, if long continued, renders the nervous system more irritable, and less able to cope, without succumbing with any unusual strain or emotion, such as fright, sorrow or trouble.

Whenever the resistance in the arteries increases, the heart must perform greater labor to maintain the circulation; if the heart be normal, it undergoes hypertrophy. If itself impaired, it can only meet the condition by such a degree of exertion, as soon leads to over-exertion—which manifests itself by cardiac asthma. It is also evident that the increase of resistance may attain such a point, that even the normal heart is soon exhausted in the effort to overcome it. *Cardiac insufficiency consists simply in this, that the heart is not equal to the performance of its function without manifest effort.* Federn speaks of a pain about the heart to which he gives the appropriate name of *fatigue pain,* and mentions as an important physical sign, accompanying fluctuations in the blood pressure, variation in the pitch, the intensity and localization of cardiac murmurs, even when dependent on organic disease.

No less noteworthy is the statement that increased blood pressure is manifest in the early stage of arteriosclerosis, even before there has been any marked weakening of the elasticity of the vessels; at a time when the blood pressure is still adequate to fully distend the aorta and all the peripheral arteries as far as the capillary distribution. It is indeed a question whether the atheromatous process may not be occasioned by the chronic increase of resistance; or, if not caused by it, at least greatly accelerated; it seems only reasonable that the delicate structure of arterial and capillary wall must undergo some deleterious change under the influence of long-continued, abnormally high pressure, which we now have it in our power to recognize at every stage, by such instruments as the tonometer.

UNUSUAL POSITIONS OF THE APPENDIX, WITH REPORT OF CASES.*

By H. Tuholske, M. D., of St. Louis.

It is not my intention, nor is it indicated at this time, and before this society, to touch, be it ever so lightly, upon the development, ontogenetic or phylogenetic, or on the morphology of the appendix vermiformis. My desire is to place on record a number of cases of unusual position of the appendix. I advisedly use the term *unusual* instead of *abnormal* positions, since the apparently abnormal is the outcome of the usual positions which the appendix occupies during its period of development, during the time when the coecum, situated in the subhepatic space across the duodenum, under the stomach towards the left, bending downwards, becomes the descending colon; when the growing coils of the small intestine are towards the right and the large intestine upon the left side; when the subhepatic space, small, because of the large size of the liver and the small size of the lumbar vertebræ, approaches so closely the right iliac fossa; and when coils of the small intestine lie behind the coecum instead of mesially and below, preventing, until they resume their later positions, the approximation and attachment of the coecum to the posterior parietal peritoneum. Arrest of development, inflammatory or other pathological processes, may then hold the appendix in the position it is just then occupying, unknown and producing no symptoms, until it becomes involved in inflammatory, simple or specific conditions, or malignant degeneration processes. The appendix, therefore, from its history of development, may be found anywhere in the abdomen from the liver to the pelvis, on the right or the left side.

The following cases present some of these unusual conditions:

Case 1. This is the case of a young girl now in the hospital. She was seen the first time when she was seven years of age. She came for examination for a minor ailment, and, finding nothing requiring surgical interference, I turned the patient over to Dr. Johnson. On my examination I had found that I had a case of situs transversus; the heart was on the right side, the liver on the left side, the spleen on the right side. Dr. Johnson confirmed the diagnosis. The girl grew up, developing beautifully and becoming a large girl, now thirteen years of age, having fair health, not suffering on account of the situs transversus. She went away on a summer vacation recently, when she was taken with abdominal pains, referred to the left ovarian region. She consulted a physician, who found her getting over the fever and pain, and who discharged her a few days later, with the diagnosis of ovarian trouble. Some eight weeks afterwards, the same thing occurred, was similarly diagnosed and treated. Four weeks ago I was called to see her. Dr. Johnson, who told me the pain was localizing on the left side, knowing the situs transversus, thought there was trouble with the appendix.

*Read before the St. Louis Surgical Society, January 8, 1908.

After an examination, I agreed, and stated that we were dealing with an appendicitis, and advised operation, which was performed nine days ago. Knowing the position of her organs, I felt no doubt that we would find the appendix on the left side, and therefore I made the incision on the left side at once, found the coecum and appendix, the latter erect and without any mesenteriolum whatever. The usual operation was performed and the usual recovery followed.

Case 2. This case occurred at the Washington University Clinic, the patient being turned over to the surgical clinic with a diagnosis of appendicitis. Patient had suffered many times with pains in the belly, sometimes of a severe, sometimes of a mild character, and gave no history indicating previous disease, except typhoid fever, and after the typhoid fever, an intestinal trouble, which at one time was thought to be one of stricture, following some ulcerative process.

I made an incision on the right side, put my finger into the belly, but did not come in contact with the coecum at all, but with a piece of intestine, which I recognized as the rectum, and wishing to demonstrate to the class that the rectum was on the right side, I introduced a bougie per anum, raised the gut out of the abdominal cavity, and demonstrated the condition. I closed the wound, opened the belly on the left side, found the appendix and removed it.

Case 3. This case was referred to me by Dr. P. G. Robinson, who had diagnosed an abscess of unknown cause on the left side. I made the incision for an abscess without determinable cause. It was readily shown, after cutting into the pus cavity, that I had cut down on the coecum, and I found the appendix, loosened, gangrenous and swimming in pus. I removed it.

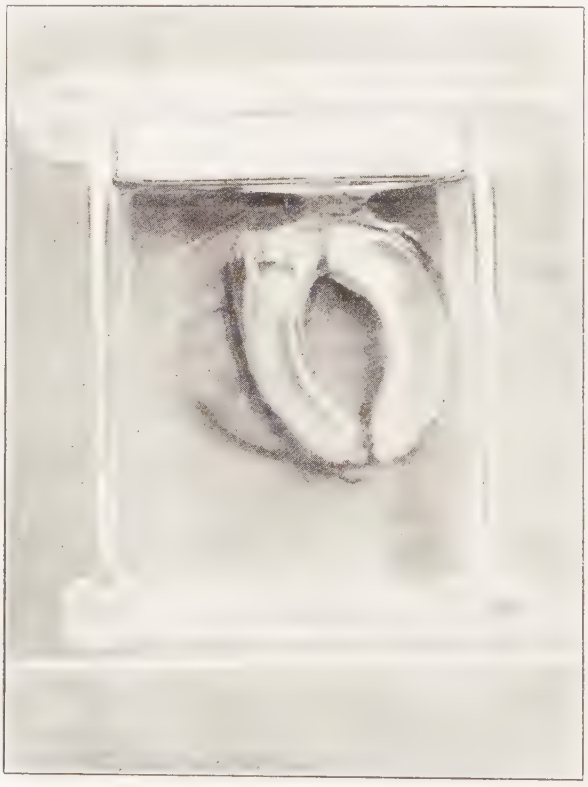
Case 4. This case was one of considerable interest and, although not rare, unusual. It was a case that Dr. Tupper had seen with Dr. Jonas and myself. The woman had a femoral hernia and some obscure pelvic trouble. After some days we made out an exudate and thought we were dealing with an abscess in the pelvis on the left side. Dr. Jonas made an incision, such as we make for ligation of the external iliac artery, expecting to approach the abscess extraperitoneally. A pus tube was found instead of a pelvic abscess. An incision was made in the median line, and the tip of the appendix was found at the fimbriated extremity on the left side. The coecum was pulled over almost to the median line. The pus tube and the appendix were removed, and the patient recovered.

Case 5. This was the case of a woman, the wife of a doctor, who presented herself with a fistulous opening to the right of the rectus in the gall-bladder region. It had been taken to be an abscess about the gall-bladder, perhaps an empyemic gall-bladder. She had been operated on at her home in the country, and she got well, a fistula remaining, however. I cut down near this sinus through clean tissue, and found the appendix attached to the under surface of the liver. The appendix was removed and the fistula healed.

Case 6. This patient came to me with foudroyant peritonitis, the re-

sult of some appendix trouble. At the first operation I simply cut down to drain and allow the patient to get over the attack. I told him to return some time later and have the appendix removed. The appendix did not come in sight during the operation, and no effort was made to hunt for it. Patient returned six months later in good health, and I cut down along the margin of the rectus muscle, and found the coecum drawn over toward the median line and covered by loops of small intestine. Having separated the adhesions, I found the appendix lying upon and adherent to the abdominal aorta, just below the coeliac axis. I managed to peel the appendix off of the aorta and remove it.

Case 7. This case I was called to see after patient had had a number of attacks of appendicitis. I advised waiting for the interval period. After two weeks, he came to me apparently free from all pain and disturbance, reporting himself ready for the operation. I could make out



Specimen of appendectiasis.

a swelling in the region of the appendix. There was a peculiar symptom, which he mentioned, namely that for months he had been troubled with seminal emissions without in any way having given himself any cause to have them, without any venereal disease, any im-

proper practices or debauch. I did not think at the time that there could be any connection between that condition and the appendicitis. I found the appendix in the normal position, but it extended far down into the pelvis. I could not get at its tip, so made a larger incision, and following it downward, found it attached to the prostate, and then lost in a mass of adhesions. I could not find the tip end, and while digging for it I tore the appendix. I removed quite a long appendix, but had to leave the distal end and drain. Patient died on the fourth day, being troubled on the very day after operation and the few days following, with emissions amounting to five or six a day. I take it that the irritation of the prostate, or perhaps of the seminal vesicles, by the inflamed and adherent appendix, was the cause of those emissions. Never before has the responsibility for such symptoms been traced to the appendix.

With the report of this last case I close the list of unusual positions of the appendix under my observation, and beg to present for your examination this specimen of an appendix, uniformly dilated, closed at the coecal end, containing a mucoid fluid, the mucous membrane and the musculature atrophied; this might be called a mucocele or an appendectiasis.

THE CUTANEOUS TUBERCULIN REACTION. A CLINICAL REPORT.*

By Louis M. Warfield, M. D., of St. Louis.

The studies in immunity have led to the discovery of a remarkable property of the blood serum known as anaphylaxis. This property, discovered by Richet, is the increased susceptibility of an organism to toxins or serums that also render the same organisms immune to these toxins or serums. Thus Rosenau and Anderson have shown that horse serum that is harmless in fairly large doses for guinea-pigs is powerfully toxic if the guinea-pig be injected with a small amount of the serum, and then ten or twelve days later be injected with a fraction of a cubic centimeter. Moreover they showed that by injecting small doses of serum daily the animal could be rendered immune to the serum.

The mechanism of this process of anaphylaxis has been exhaustively studied by Gay and Southard who found that the histologic lesions were analogous to those of fatty degeneration. The substance circulating in the blood that prepares the cells for the toxic action of the agent they propose to call anaphylactin.

von Pirquet found that those who had been recently vaccinated with cow lymph reacted in a very peculiar, but constant manner, to revaccination. They seemed to be hypersensitive and yet they were immune. Within twenty-four hours after revaccination there was a local reaction at the vaccinated spot but absolutely no general reaction. He says that immunity and hypersensibility can be intimately associated. The vaccinated person reacts toward lymph, the luetic towards syphilitic virus, the tuberculous towards tuberculin, the one injected with serum towards the serum, quite differently from an individual who has never been brought in contact with the specific agent; therefore he is far from being immune. All that one can say is that his reactive power is changed. He proposes for this general conception of the changed power, the word, allergie. The person vaccinated, the tuberculous, the one injected with the serum, is allergish towards the respective foreign substances.

It was his work on revaccination that led von Pirquet to try the effect of tuberculin vaccination on tuberculous subjects. At a meeting of the Berlin Medical Society he called attention to the phenomena of revaccination. This "early reaction," as he called it, consisted in the appearance of a papule at the site of the vaccination within twenty-four hours. He reported that he had made use of this principle to vaccinate children with tuberculin. He considered that if they had tuberculosis they would react as did the revaccinated cow lymph cases. He had therefore vaccinated 500 tuberculous children and nearly all had reacted. Those who did not react were cases of miliary tuberculosis, tuberculous meningitis in the last stages, and cachectic children. He thought that the diagnostic

*Read before the Section on Internal Medicine of the St. Louis Medical Society, January 11, 1908.

value of the reaction was limited to children, as statistics from post mortem records showed such a large percentage of adults affected with tuberculosis who died of other diseases, that adults would react to the test.

Later he reported results on 360 children. Of the clinically tuberculous, 88 per cent were positive; of the clinically unsuspected, 16 per cent were positive. Twelve per cent were negative, these were children in cachectic stages or end stages of miliary tuberculosis. In children from 8-14 years, 35 per cent reacted who showed no signs of tuberculosis. Among 109 infants only two were positive. A five months infant reacted positively and at autopsy tuberculosis was found. In 23 cases there were records of post mortem examinations. Three cases, cachectic when vaccinated, who did not react, showed tuberculous lesions. Five who reacted showed tuberculous lesions. In 15 who did not react no tuberculosis could be found.

Wolff-Eisner reported that he could affirm von Pirquet's statements. He had found old tuberculin the best preparation. The tuberkulol of Merck also was good. New tuberculin (Koch) showed the weakest reaction. He had obtained results with dilutions of 1-10,000 old tuberculin. At this time he also mentioned his ocular reaction with 1-10 old tuberculin.

At the meeting of July 24, 1907, Citron called attention to the value of the reaction in children, but stated that every adult reacted and therefore it was not of value in adults as an aid to diagnosis.

Dufour reported before the Academy of Medicine at Paris that he had found a unanimity of reaction in children with the von Pirquet and the Calmette reaction. He also found that cachectic cases do not react.

Later von Pirquet reported a series of 100 autopsies on children who were from a few months to 14 years old. He found that practically always in the last ten days of life in the tuberculous, the reaction failed. Again he saw several cases that after several vaccinations showed mild positive reaction. He suggests three possibilities for such reactions:

1. Through excitation of the allergie by means of the tuberculin vaccination as such.

2. Through the reawakening of an antibody production consequent on the vaccination.

3. Through an infection with tuberculosis in the meantime, with a consequent production of antibodies.

He leans to the second explanation, although theoretically the first is plausible. One of his cases might be explained on the third theory.

He found moreover that cases that on post mortem showed only a calcified lymph gland or a calcified nodule at an apex reacted to the test. Healed as well as active lesions therefore are capable of calling forth the reaction. In one case that reacted positively the only probable tuberculous lesion was adhesion of the lung to the pleura.

To sum up: In 34 deaths from tuberculosis, 24 were tested in the last ten days. Thirteen failed to react, eleven were positive. In 11 cases that had been tested previously, all reacted positively. In 13 cases where

tuberculosis was found as an accidental lesion post mortem, 6 reacted to the first vaccination, 3 later. Four were negative of which three were tested during the last ten days of life. In all the 32 cases with positive reaction caseated tuberculous glands at least were found (one exception above). In 52 post mortem examinations revealing no macroscopic lesions of tuberculosis, none reacted to the allergie test. He thinks that "a positive reaction shows surely the presence of tuberculous changes. A negative result means in general freedom from tuberculosis; however the test regularly fails in the last ten days of fatal tuberculosis." He also called attention to the fact that more than half the negative cases occurred in the first year of life.

Engel and Bauer do not agree with von Pirquet. They tested over 300 children and infants. In 48 infants 6 reacted positively. Five of these seemed certainly free from tuberculosis. One died and autopsy revealed no sign of tuberculosis. Four others did not react to injections of tuberculin. The fifth infant reacted to injection of tuberculin.

On the contrary out of 280 children from 3 to 14 years old many reacted. The children were all from the poorer classes and most were underfed and some gave a family history of tuberculosis.

In general they believe that there is a close relationship between von Pirquet's reaction and tuberculosis, although they would not draw such certain conclusions as he has drawn. For infants they do not believe that it is of great value.

Interest in the work led me to try the test on a series of persons of all ages, whether tuberculous or not. I have been carrying it on since last summer. The chief object was to find out if the reaction was of any value as an aid to the diagnosis of early tuberculosis. All know how difficult it is to diagnose incipient lung tuberculosis, and any method that will give any assistance to us must be hailed as a marked advance in our treatment, for the earlier the diagnosis the surer the result for the patient.

If one scratches the skin of a tuberculous patient through a drop of old tuberculin diluted to 25 per cent, a very constant reaction takes place. A typical reaction is shown first in the formation of a small pinkish papule within twenty-four hours usually, at the site of the vaccination. This is soon surrounded by an area of hyperemia to be followed later, about the second or third day, by a group of small vesicles filled with clear serum that coalesce in a raised ring around the spot of scarification. This ring of vesicles may attain the diameter of 15 m.m. and the hyperemia surrounding them ends rather abruptly in the normal skin. After ten days or two weeks the vesicles dry up without pustulation and slight scaling occurs. There may be subjectively a little itching. Between this marked reaction and the simple one of a small papule surrounded by a small area of hyperemia lasting only three or four days, all gradations occur.

von Pirquet recommends a special form of instrument with a chisel-like end that is used with a rotary motion to scarify the skin. I have

made an instrument, that answers all purposes, out of an old blood lance by filing off the point.

My procedure is as follows: The skin of the upper arm in a place free from hairs, is washed with alcohol and allowed to dry. On two places situated about 3 inches apart, is dropped from a sterilized hypodermic syringe, one drop of a 25 per cent solution of Koch's old tuberculin. (The syringe is used instead of a dropper on account of the small size of the drop and the ease in getting just one drop.) The skin between the drops is then scarified with the lance by turning it to and fro and then through the drops the scarification is done. After one or two minutes the tuberculin is mopped up. No dressing is necessary. The scarification must not draw blood. Should the faintest reaction occur it is easily seen by comparing it with the central control spot.

In the appended tables I have used the following symbols: S is the suggestive reaction, i. e., only a faint pinkish areola around the scarified spot with no papule, vanishing before two days. + is a papule without vesiculation. ++ a papule with a few small vesicles. +++ a marked reaction—all are alike. — negative * vanishing.

My series includes 150 cases from 3 months to 51 years old. There are unfortunately no autopsy records.

Fifty-five babies from three months to four years old were tested at the Bethesda Foundling Home, 51 children from 5 to 14 years old at the Episcopal Orphans' Home. I take this opportunity of expressing my thanks to Dr. E. W. Saunders for permission to use this material. Dr. White, interne at Bethesda, I also wish to thank for his interest and coöperation, and also Dr. H. Unterberg, who has been of great service. Thirty-two cases were in dispensary and private practice.

Of the 55 babies only one, an infant of 7 months, reacted. This baby was apparently healthy. It happened that a few facts were known about its mother. She had advanced tuberculosis when the baby was born and died one month later. The baby was with her all the time. Another case, one that did not react, was born of a tuberculous mother but was immediately taken from her. The woman died of tuberculosis soon afterwards. One or two other babies born of tuberculous mothers did not react. No satisfactory history could be obtained in these cases.

The children at the Orphans' Home proved most interesting. In the table sisters and brothers are indicated by a parenthesis sign. Fourteen out of 51 reacted, some with a very marked reaction.

Three in one family, 6, 8, and 10 years, the youngest and oldest reacted slightly. History not sure, but it is believed that the mother died of tuberculosis. Two in one family, 8 and 12 years old, the older one reacted slightly. History not known. Two sisters, 8 and 9 years, the older one reacted slightly. History not known. A brother and sister, aged 12 and 15, both reacted, the sister more markedly. No history. Three children, two boys and a girl, 7, 9 and 12 years, all reacted. It is known that the mother died of tuberculosis two years ago. The children were then placed in the orphanage. Two brothers, 6 and 9 years, reacted slightly. No history. Several groups of brothers and sisters

TABLE No. I.

No.	Name	Age	Sex	24h	48h	72h	10d	Remarks
1	P. M.	10	f	—	—	—	=	
2	T. B.	9	m	s	—	—	=	
3	S. B.	8	m	—	—	—	=	
4	R. B.	10	f	s	+	—	=	
5	P. B.	6	f	s	s	+	=	
6	R. W.	13	f	s	—	—	=	
7	G. P.	8	m	—	—	—	+?	A delayed and questionable reaction.
8	E. O'C.	9	m	s	—	—	=	
9	J. O'C.	7	f	—	—	—	=	
10	H. M.	8	m	s	—	—	=	
11	G. M.	12	m	s	+		+	Slight scaling, probably positive.
12	M. St. C.	9	f	s	+	—	=	
13	K. K.	8	f	—	—	—	=	
14	V. K.	9	f	s	+	+		
15	S. J.	14	f	s	—	—	=	
16	C. A.	8	f	s	—	—	=	
17	M. B.	12	m	s	+	+	*	Undoubtedly slightly positive.
18	E. B.	15	f	+	++	++	*	Scaling on 12th day.
19	M. N.	6	f	++	+++	+++	*	Very marked reaction.
20	S. P.	6	f	—	+	+	*	
21	L. B.	12	f	+	++	++	*	Mother died of tub. 2 years ago.
22	H. B.	7	m	s	+	+	*	do
23	W. B.	9	m	+	++	++	*	do
24	A. S.	9	m	s	+	+	*	
25	T. S.	6	m	s	+	+	+	Slight papule end 10th day with areola 5 mm.
26	G. P.	13	f	—	—	—	=	
27	L. M.	6	f	—	—	—	=	
28	N. L.	8	f	—	—	—	=	
29	M. O.	10	f	—	—	—	=	
30	G. H.	12	m	—	—	—	=	
31	I. H.	10	f	s	—	—	=	
32	Z. W.	14	f	—	—	—	=	
33	D. M.	5	m	—	—	—	=	
34	J. R.	6	m	—	—	—	=	
35	E. McG.	9	m	—	—	—	=	
36	E. McG.	6	f	—	—	—	=	
37	F. P.	8	m	—	—	—	=	
38	L. L.	9	m	s	—	—	=	
39	T. P.	10	m	—	—	—	=	
40	G. O.	8	m	—	—	—	=	
41	S. B.	8	m	—	—	—	=	
42	E. M.	10	m	s	—	—	=	
43	W. L.	6	m	—	—	—	=	
44	C. S.	5	m	—	—	—	=	
45	L. H.	6	m	—	—	—	=	
46	M. C.	11	f	—	—	—	=	
47	J. M.	6	f	—	—	—	=	
48	E. O.	9	f	+	+	—	=	Throat trouble and frequently hoarse
49	A. O.	11	f	—	—	—	=	
50	M. H.	12	f	—	—	—	=	
51	H. H.	9	m	s	—	—	=	

did not react. It must be borne in mind that these children were unusually healthy, well nourished, none of whom had any evidences of tuberculosis.

The remaining forty-five cases are very instructive. They show that not all adults by any means react to the test. The oldest case, a woman 51 years old, was quite negative, and the youngest, 9 years old, was also negative. One of the most typical reactions occurred in a man 26 years old, well nourished and perfectly healthy. He had never had any illness. No tuberculosis in the family history. He was injected with 1 mg. of Koch's old tuberculin. There was no reaction. He was then given 5 mg. of old tuberculin. Twenty-two hours afterwards there was intense headache. There followed within a few hours malaise, rapid pulse and a rise of 1 1-5 F. There was considerable induration and swelling at the site of the injection.

One case, male, aged 31, did not react on two separate occasions. There was no reaction to 5 mg. of old tuberculin given in the arm. To 10 mg. there was some slight rapidity of the pulse and a very slight rise of temperature with no subjective sensations or pain at the site of inoculation. Another case, a woman aged 32, on whom a diagnosis of "quick consumption" had been made three years ago and in whose lungs no definite signs can be found, did not react to the test. Three milligrams and five milligrams of old tuberculin caused only a half a degree rise of temperature with no subjective symptoms and no change in the lung signs.

The reaction occurred more or less in 27 of the cases. Six of these were well persons. Two brothers 15 and 18 years old were undersized, pale, with long narrow thoraxes and stooped shoulders. Their father and mother died of tuberculosis 9 and 2 years ago. Three young men, physicians, healthy, with good family history reacted markedly. The sixth was a very tall, thin, narrow-chested boy of 19 years, family history good. He was always tired, could not concentrate his mind and was subject to fainting spells.

Eight positive cases included suspected early tuberculosis, diagnosed early tuberculosis, and one healed case. This last case was a girl who was sent to Mt. Vernon Sanatorium last July, diagnosed incipient tuberculosis, lesion at right apex.

The other twelve cases were patients in the tuberculosis ward of the City Hospital. All were in fair condition except one who was markedly cachectic. He was the only one who did not react.

I confess that I put considerable faith in this very simple test. One may say that many apparently healthy people react to the test hence its value is limited. One may reply that a positive Widal test does not always show active typhoid fever nor does the demonstration of diphtheria bacilli in the throat always mean that the patient has diphtheria. Even the finding of tubercle bacilli in the sputum may not mean active tuberculosis of the lungs. No one test makes a diagnosis. The difficulty attending the attempts to use the laboratory as a final court of appeal, is known to all. This cutaneous reaction shows tuberculosis at the time or previously. Of that I do not believe there can be much doubt, but the diagnosis is not to rest on this one test alone. von Pirquet finds that if there is only a caseated gland or a calcified nodule at an apex, that

TABLE No. II.

No.	Name	Age	Sex	24h	48h	72h	10d	Diagnosis	Remarks
1	J. M.	18	m					Well	Father and mother died of tuberculosis 9 and 2 years ago.
2	A. M.	15	m	+	++			Well	" " " "
3	J. G.	21	f	+	+			Incipient tbc. healed	Sanatorium case, initial hemorrhage. Few signs.
4	L. J.	36	f	+	+			Incipient tbc.	Diagnosis made before skin reaction used.
5	S. F.	38	f	+	+			Incipient tbc.	Slight cough in a. m., past few mos. Suggestive signs.
6	H. T.	19	m	s	+	+		Incipient tbc.	Loss weight, slight cough.
7	H. G.	27	m	++	+++	+++	*	Incipient tbc.	
8	B.	25	m	+++	+++	+++	*	Well	
9	S.	25	m	+++	++	+++	*	Well	
10	H. W.	26	m	s	++	+++	*	Well	Very marked reaction, large vesicles and areola 15 mm.
11	S. W.	26	m	+	+++	+++	*	Incipient tbc.	For past year indefinite stomach trouble. Malaise.
12	B. S.	35	m	+	++	++	*	Incipient tbc.	Slight lesion at right apex. Tired all the time.
13	M. M.	32	f	+	++	++	*	Incipient tbc.	Rapid pulse, slight afternoon fever, slight dry cough.
14	M. T.	19	m	+	++	++	*	Well	Long thorax, thin tall boy.
15	H. O.	37	m	++	+++	++	*	Healed tbc. (?)	Lost 20 lbs. past year. Signs of healed lesion.
16	C. B.	33	f				*	Inc. tbc. dry pleurisy	Slight cough, tired all the time, slight lesion at right apex.
17	E. G.	26	f	—	—	—	=	Well	
18	A. F.	9	f	—	—	—	=	Chorea, mitral insuf.	Considerable cough. Father now has adv. tuberculosis.
19	O. Q.	30	m	—	—	—	=	Amoebic dysentery	On account loss of weight and cough had been diagnosed tbc.
20	R. G.	16	f	—	—	—	=	Neurotic	
21	N. S.	36	f	—	—	—	=	Well	Indefinite and uncertain signs right apex.
22	A. M.	16	f	—	—	—	=	Well	
23	A. P.	30	f	—	—	—	=	Well	Husband died tbc. Sept., '07. Exam. patient negative.
24	McC.	21	f	—	—	—		Pyonephrosis	Acid fast bacilli found in urine. Tuberculosis kidney considered.
25	L. W.	31	m	—	—	—	=	Well	
26	J. K.	19	m	—	—	—	=	Neurotic	
27	D. G.	28	m	—	—	—	=	Neurotic	
28	L. C.	32	f	—	—	—	=	Mucous colitis	Also negative to ophthalmo reaction, suggestive signs apex.
29	M. F.	21	f	—	—	—	=	Chlorosis	
30	S.	51	f	—	—	—	=	Asthma	Tuberculosis suggested. Signs indefinite.
31	J. S.	32	m	—	—	—	=	Gonorrhoeal arthritis	
32	M. G.	34	f	—	—	—	=	Exophthalmic goitre	

the reaction followed vaccination. Cachectic cases, cases of miliary tuberculosis, and lethal cases of tuberculous meningitis do not react to injections of tuberculin always. The reacting power of the body seems to be benumbed, the organism is already overwhelmed with the toxin, and the cells can produce no more receptors.

Therefore it is no argument to say that because well persons react the test is of no value. To my mind it is the negative reaction that is the most valuable. Given a case such as one of the three boys in my series, I do not believe that it shows active lesions, as there were no evidences of activity of the tubercle bacilli and careful physical examination revealed no lesion. But what the positive reaction did call attention to was the great probability that those cases if neglected would develop active tuberculosis. Of course only time will prove this belief.

Again, in a case that seems to be one of incipient tuberculosis, but after frequent examinations and careful observation there is still some doubt, the positive reaction means to my mind the extreme probability that the case is tuberculosis and I treat it as such. Such cases if treated energetically get well. The positive reaction is just another link in the chain of evidence. Such cases would undoubtedly react to injections of tuberculin. However, there is always a slight element of danger connected with the injection of tuberculin and moreover to give properly such injections requires that the patient be in bed or where he can be watched, and that his temperature be carefully taken. This is not always feasible except in a sanatorium. In the cutaneous test there is no discomfort, no constitutional disturbance. It is absolutely harmless. Further work from many observers must be done before we can place it alongside of the Widal reaction, for example, but enough has already been done to convince me, at least, of the value of the test in children and adults.

My conclusions may be summed up as follows:

1. The cutaneous tuberculin reaction of von Pirquet is a perfectly harmless procedure.
2. All adults do not react to the vaccination.
3. It is of value in the so-called pretuberculous stage.
4. The negative reaction precludes tuberculosis so far as we can be sure of the results of any one test.
5. A positive reaction does not always mean active tuberculosis. It may mean a healed lesion somewhere in the body, but it calls attention to the possibility of later tuberculosis. It also draws attention to the probable tuberculous nature of the case and a more careful examination of the patient will sometimes reveal the previously overlooked lesion.

Metropolitan Building.

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THE HISTORY OF THE HOUSE; THE STRUGGLE FOR FRESH AIR AND LIGHT.

By George M. Gould, M. D., of Philadelphia.

The fact of the rafters is the most fundamental in all early house-building. The side walls are late devices. The primitive house was essentially rafters, and these old and ever-new savages, our soldiers, best preserve the tradition of the entire history of the race. The building of a house was the beginning and means of gaining security and power. The man who could say, *This is my house,* was the leader and lord of others. And the best house made its owner the best man. The primitive house was made of four poles, leaned, crossed, and bound together, two here and two there, at the top, the points, when crossed, sticking out like the letter V. These two letters, V, on the coat sleeve of a corporal, are called chevrons, and literally and etymologically mean rafters; they show who was first honored with military office. If the primitive householder had such a big and fine house as to have three sets of rafters, he was the sergeant. If later he had a gable-window, he was an orderly sergeant. If he had one-story only, the lieutenant had no bars to his shoulder

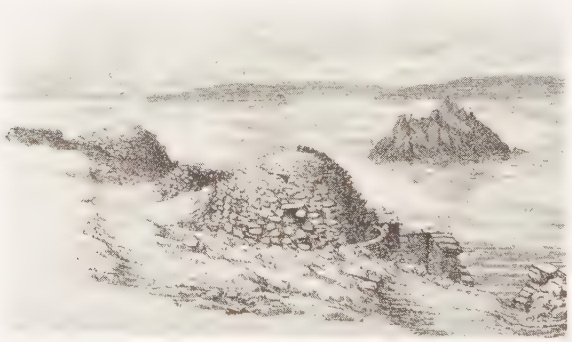

Fig. 17.—When poles, etc., are not to be found, other materials were used, but the pattern remains the same. Whites' early monastic settlement at Skillig, Michael Kerry, Ireland.

straps; if he had a second-story, he got one bar there, and if a third-story was his boast, he was made a captain, with two bars on his shoulder. Thus little traditional customs like buttons and bands summarize, for the evolutionist, the long-past history of the race. "The ontogeny repeats the phylogeny."

When poles and wood were accidentally not obtainable, and when exigency commanded, the round hut was patterned with great difficulty, in other materials,—as, *e. g.*, in the huts on the seashore of the whites' early monastic settlements at Skellig, Michael Kerry, in Ireland.

Such remains, and the huts of the charcoal-burners and the teepee-

tents of the soldier, are the relics of survivals of the round-hut period of our remote ancestors. It was early replaced by our Teutonic forebears, by the square style. More room was needed for the cattle, and so the rafter poles were merely widened out laterally and the round room or hall became oblong or square. This fashion was aided by the fact that the sparse population were surrounded by forests. Tacitus found the Germans living their lives, singly, in the woods, or in small communities,* and their descendants have preserved better than other peoples this separatist habit. From this cause flows their prolificity and ascendency over others. Their seclusions and independence taught them virtue, some cleanliness and freedom from disease, etc., things that crowded folk can never learn or know. This is the genuine reason for Anglo-saxon supremacy in the world.

The Greek and Oriental house was, from the first, built for the purpose of housing people, not cattle. In the mild climate the cattle

FIG. 18.—The Oratory of Galierus, still standing in England. The shape of this house, in stone, is the same as that made by bending sapling trunks and tying the tops together.

could run loose or be herded. In the north they had to be housed; that is the reason for the two types of houses. Today the Japanese house and every room in it is made so that the floor space may be exactly covered with tatami or mats, all of the same size—3x6 feet—the exact size required for a person when sleeping. The Greeks and other Oriental nations had a similar unit of measurement of floor space and house size called a κλινη, about 2x1¼ meters. This word κλινη, indeed, later became the word for bed, and is the original of our word clinic, polyclinic, etc. The Teutonic house, on the other hand, was built for housing domestic animals, the cows, horses, etc., and every occidental house bears many signs of its origin, of the forgetfulness of ventilation and light, whence spring our so-called house-diseases.

*"Colunt discreti ac diversi, ut fons ut campus, ut nemus placuit," he says.

FIG. 19.—Siberian Chuckchee house, half stone, with pole rafters covered with skins.

At first our domiciliary ancestors bent their sapling trunks together, and did not cut them down. Hence the rafters were curved. There is actually standing today at least one type of such a house in Ireland, the so-called Oratory of Gallerus. But it is in stone! How difficult must have been the building! But tradition and fashion dictated. An interesting illustration of the continuance of this type of house, in its half-way stage, was given in a late issue of the Popular Science Monthly. It is the house of the Chuckchees, a tribe inhabiting the extreme northeastern coast of Siberia. The base walls are stone, with a wooden frame above covered with skins. Note the poles appearing as rafters.

It was early found that saplings of the first houses must be about 16 feet apart, and the two at the other extremity were also 16 feet apart. This had been found the necessary width for stabling horses,

FIG. 20.—Enlarging the old house by adding part of a "bay," and extending the roof over it. A house at Burscough, England.

cows, etc., when facing each other. For thousands of years the problem of the domestication of these animals was the all-controlling one with the Teutonic peoples, and the house was in reality a barn, built not primarily for the man, wife, or children, but to protect and control the cows and horses. Such a 16-foot house was called a bay, and late in the middle ages houses were bought, sold, and deeded by the bay, half-bay (8 feet), quarter-bay, two-bay, three-bay, etc. When the house was enlarged by a half-bay, it was at first by a makeshift bulging or swelling, illustrated by the picture of a still-existing house at Burscough, England. When, later, your recent ancestors could have a window in it, they, and we, called it a "bay-window." Every kitchen in the land, being an afterthought, is a half-bay addition, and every house shows how bays, across, or at the end, half-bays and quarter-bays, have been added. Every house we see is written all over with its own thousand-year history. Our greatest of great grandfathers filled the walls of his "bay" with

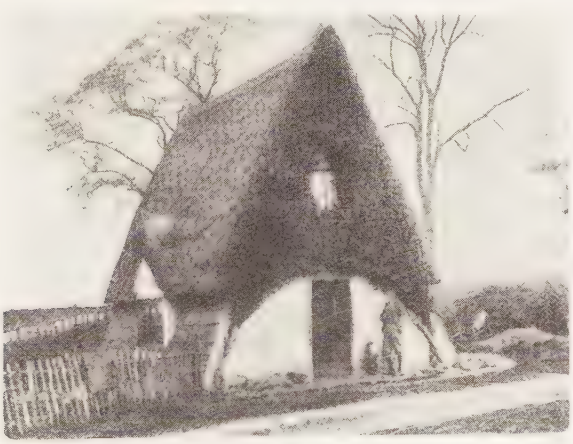

FIG. 21.—When the sapling-rafters were cut off at the ground, they ran straight to the ridge-pole. "Teapot Hall," Scrivelby, England, still standing.

poles, brush, straw, peat, etc., and later with mud, stone, and finally with brick, etc. Vitruvius says, "First men erected forks, and weaving bushes between them covered the walls with mud."

The entrance door to the ancestral house was necessarily at the end and beneath the gable, facing the east, or the best light, windows being unknown. The ridge pole laid in the forks was the origin of our "16 2-3 feet make one rod, perch or pole."

When little trees were not left growing or standing in the ground, but were cut off, the rafters, of course, went straight, not curved, from the ground to the ridge-pole, and the house was shaped in cross-section, like an inverted letter V. An example of such a house is "Teapot Hall," Scrivelby, near Horncastle, England. The chimney is of recent date. The "space" at the angle near the floor, too small except for storing grain, etc., to enlarge which was one incentive

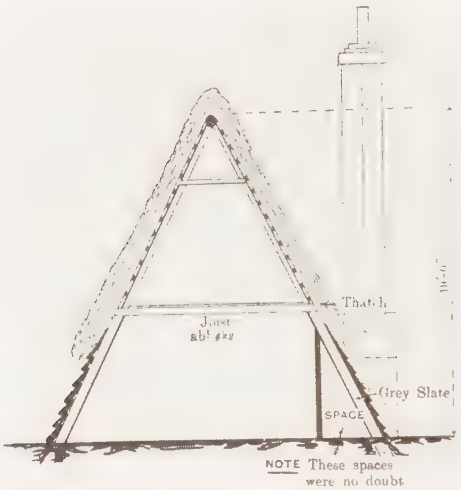

FIG. 22.—Cross-section of Teapot Hall. (The chimney is modern.)

for beginning the perpendicular side wall, and also to give better standing room, by elevating the rafters and the roof. These spaces finally grew into little rooms. The addition of rooms was also gained by utilizing the spaces about the old fire-place, or hearth, and partitioning them off for the pantry, scullery, etc. Finally such a degree of luxury was reached that the richer could have a double house, one end being used for the human beings, and the other for the animals, with some partition between the two. The ox-house

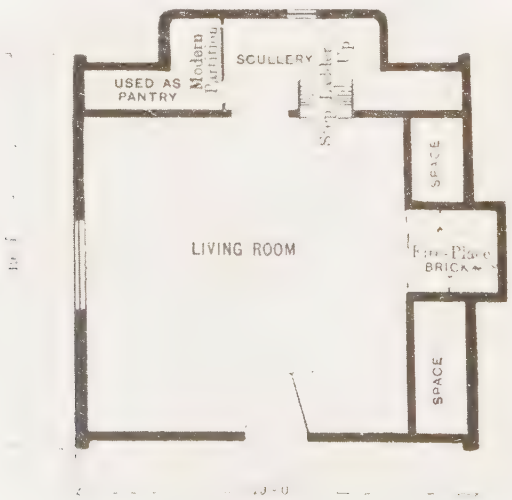

FIG. 23.—By elevating the roof and making prependicular side walls, the waste spaces, etc., were utilized and more room gained.

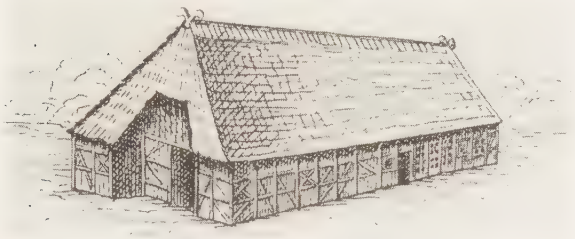

FIG. 24.—Typical Frisian or Saxon house, primarily an "ox-house." (The forks are becoming ornaments.)

or barn was thus separated from the fire-house or hall, so-called. The passageway between the two was the threshing floor, or simply "the floor," or thresh-hold. Hence our modern word "threshold." It was also called the entry. The typical Frisian or Saxon house, still widely used, is essentially the same as the old English, with slight improvements.

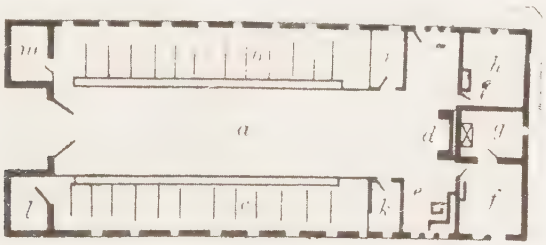

FIG. 25.—Ground-plan of Fig. 24, showing the combination of ox-house and fire-house or hall.

The inside of the original one-roomed house of all early times is illustrated by a mud-walled house still standing at Great Hatfield, England. The walls are two feet thick. The "speer" was a screen protecting from the drafts of the door those sitting about the hearth.

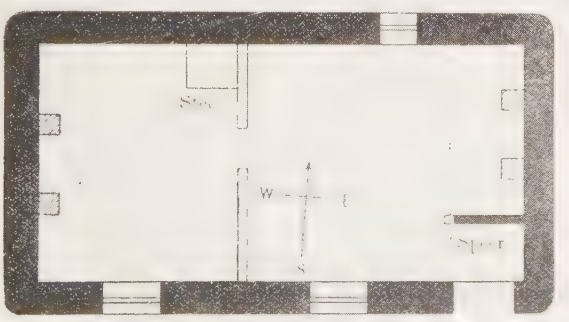

FIG. 26.—Mud-walled house, still standing at Great Hatfield, England. The walls are two feet thick. The "speer" is a screen, protecting from drafts; the "stee" is the ladder to the upper story.

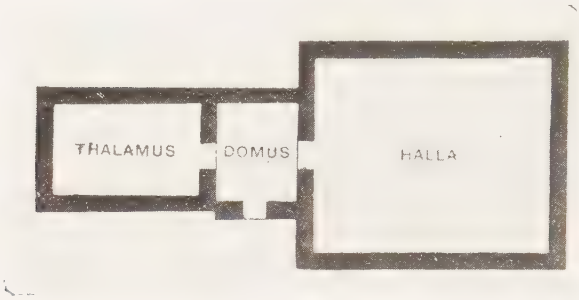

FIG. 27.—Method of adding a living-house to the hall by a half-bay. Kensworth Manor House.

The "stee" was the ladder going up to the upper story, which was five feet high. The doorway and lower room of all old-time houses was about six feet, showing that few men were as tall as that. A living house was added to the ox-house by a sort of half-bay. It is illustrated in the old Kensworth Manor-house. A more common way was that carried out by the owner of a house at Burscough. A half-bay chamber was added behind the hearth-stone, another at the opposite corner, with a buttery, and,—a remarkable fact,—a "latrina." The English word *hall* has always denominated the single large original room of the one-roomed house. As, one after another, parts of this space were partitioned off, the women's "bower" first, and then other rooms, there was finally left only the tiny part of the house we now call "a hall." It is all that is left of the noble English hall.

The greatest step in advance in the history of architecture was the addition of upright vertical walls, whereby the roof was raised, space inside increased, and the second-story made possible. It was doubtless a slow process, and the manner of effecting it is shown in the section of a barn at Bolsterstone, England. The tie-beams were lengthened outwardly, and long beams, the pons or pans, were laid, the rafters placed between the pans and the ridge-tree. The sides were then built up with stone, mud, brick, etc., shown in a barn at Treeton,

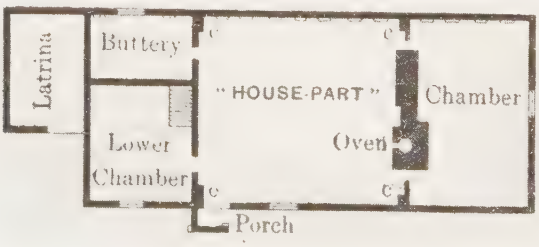

FIG. 28.—A half-bay chamber was added to this house behind the hearth-stone, another at the opposite corner for the buttery and "latrina."

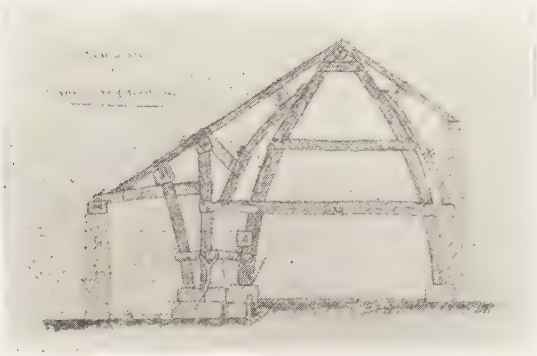

FIG. 29.—Method of making upright sides or lower story walls and increasing the room space. Barn at Bolsterstone, England.

England. Often the old wooden structure was entirely covered by the new walls, as is shown in the "crucks" of a demolished house.

Until sawed boards came into common use there were no floors, and no second stories. Wood was plenteous in the middle ages, and while it was so, split oak tree trunks were used as posts, tie-beams, etc., and as walls set closely together. When timber became scarce the spaces between the timbers were enlarged and filled with the cheaper materials at hand. The closeness of the timbers is thus a criterion of early date. Finally concrete, stone, brick, etc., became the entire walls. Wooden and stone shingles came into use in the 14th century. The transformation of the "stee" into the stairway, or the perpendicular ladder into the slanting staircase, was slow, and is illustrated by the picture of a stair at Upper Midhope, in which the first five steps are perpendicular, while the upper ones are inclined a little, and supplied with a hand-rail. The stairway was often

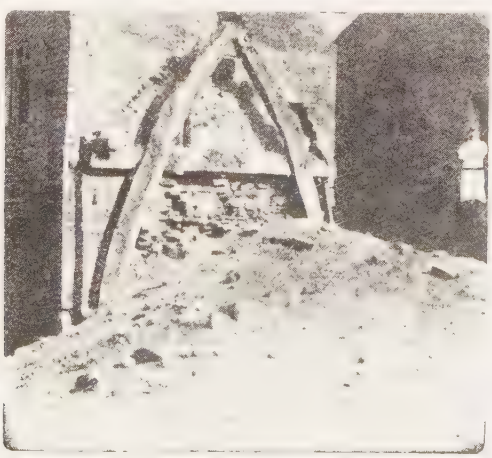

FIG. 30.—Photograph of a demolished house with the old crucks built about with new walls.

on the outside. Two story-houses began to appear in the 12th and 13th centuries. Wainscoting began in the 13th. Tapestry had long been used by the rich as protection for the beds from the drafts and dampness of the thick stone walls, and also, later, as ornaments. These tapestries finally and recently became wallpaper, pasted on the walls, although still advertised as "paper-hangings." As late as the 14th and 15th centuries the hall-floor was not boarded, but was made of packed earth, sometimes with flagstones. Upon this floor straw or other litter for beds was thrown, especially about the sides.

The cheerlessness of these dark halls or homes made men seek a common meeting place at some neighbor's house, who could afford

FIG. 31.—The ladder to the upper story in process of becoming a stairway.

a better fire and seats, and perhaps better wine or beer, and thus gradually grew up the village inn, the beginnings of our hotels and drinking "saloons." The allurements of these modern places show how history repeats itself.

The struggle for warmth dominated the history and development of northern civilization. In all the previous history of animal life it had also been the controlling necessity, and nature had secured the requisite and uniform 98.6 degree temperature of the human body by a thousand means and devices of which we are ignorant. Man carried on the struggle against cold chiefly by the house. He could not get his body well and properly clothed, and so he and his family and his animals were huddled together in the warm hut, which was made as air-tight as possible. There was but one door, no windows, and few air holes. The heat of his cattles' bodies also helped to lessen

the cold. As late as the 16th century the house was called the "fire-house," suggesting the recent introduction of the fire-place, an improvement over the hall without a fire.

The primitive chimney was a hole in the roof for the escape of the smoke of the fire-place or hearth. That the smoke penetrated the whole house is evident from Chaucer's line of the "Nonne Prest:" "Full sooty was hir bour, and eek hir halle." The meats and many kinds of foods were hung over the heads of the people below,—the origin of our smoked hams, bacon, dried pumpkins, corn, etc. The custom still exists in many farm houses of our country and time. Turf and charcoal were the more common kinds of fuel, and the dull-red glow gave the only light to the family sitting about it. The poet Spencer, in describing the typical delver of medieval life, says:

> "At last he came into a gloomy shade,
> Covered with boughs and shrubs from heaven's light,
> Where as he sitting found, in secret shade
> An uncouth savage, and uncivil wight
> Of grisly hue, and foul, ill-favored sight.
> His face with smoke was tanned, and eyes were bleared;
> His head and beard with soot were ill bedight.
> His coal-black hands did seem to have been seared
> In smith's fire-spitting forge; and nails, like claws, appeared."

The first improvement in chimneys was a sort of projection or hood over the hearth, with a half-chimney leading, first, towards, and later to, the hole in the roof. Improvements followed until the true chimney was built without or in the house wall, at first only to the roof, with slits for the escape of smoke. Finally it reared its head above the roof. A board or space above the hearth and chimney was used for the hats, and beneath it were the hooks for hanging the mantles to dry, whence our word "mantle-piece." "On the borders of Russia there are still to be found by the chance traveller, or the peddler from Archangel, many Savu-pirrti, or smoke cottages. These have huge open fire-places, a pleasant feature, one would say, in a frigid land, where timber is unlimited.

"But, alas! they are without chimneys, and the smoke which has no escape, save chinks and crannies, settles under the roof to be driven downward by small drafts. From this cause many of the dwellers in these homes become blind. The idea of the 'smoke cottages' was taken centuries ago from the neighboring Letts."

Personal cleanliness of body for one or two thousand years was practically unknown or unthought of in all Europe. Michelet says that for 1,000 years of the middle ages not a man or woman in Europe took a bath, and this is undoubtedly a very conservative statement. A large portion of Americans do not bathe more than once or twice a year. There was probably very little of clothes-washing in the early times among the better classes, and none among the lower. Doubtless two if not all three of the kinds of lice that are parasitic upon the human body were borne about by almost all men and women. Flies were everywhere. Latrines were at first unknown and even in comparatively modern times the few best of them

were as bad as our worst today. Bedbugs were in every bed so-called, or miscalled, even in the best and most costly.

Physicians well understood how such conditions made it inevitable that contagious diseases were everywhere prevalent, and prevented the increase of population which came at once in the last one hundred or two hundred years when a little personal and household cleanliness, and feedom from lice, checked the multiplication and dissemination of the germs which caused the scourging infections which cursed the long dark history of 1500 years.

The water supply in olden times was always difficult and usually impure. The "pits" for latrines were dug near the walls, and oblivious of the conditions of drainage. The existence of a spring or well doubtless caused the location of house or castle near by, as a primary need was always water.

The history of domestic architecture and sanitation in England makes it plain that progress in these things was almost exclusively due to the initiative of the king, and then spread to his nearest underlings, thence to the richer of the private citizens. One must not err, however, in thinking that the example thus set had many imitations until the last century or two. In the reign of Henry the Third, the first attempt at underground drainage was made. The kitchen refuse, dirty water, etc., had been carried through the great hall at Westminster, until, in the language of the King's Writ, "the foul odors arising from them seriously affected the health of the persons congregated at court," and an underground drain was devised to carry them into the Thames.

The first conduit of water was established in London in the 13th century, but long after this the water-carriers hawked water about the streets.

In old manuscripts and chroniclers of the Arthurian stories, water for washing the hands and face was brought to the guests after the removal of the armor, and before the feast. In the later middle ages there were a few houses which had, *in the screens*, as it was called, a lavatory or washing place, with a cistern of water and a sideboard or recess. Edward the First introduced the luxury of baths, and in some houses of the next century there were *camerae privatee* of a very crude kind. These "Garde-robes" or "privy chambers" were usually in the best houses of the 14th century, but of course without drainage, sometimes with pits, sometimes without.

"Eating off the same board," or platter, was the rule, i. e., one plate served for all. Our modern custom of taking wine with one another, or from the same glass, is a survival of the old custom. The English said grace before and after meals.

The custom of bringing basins, ewers and napkins to the guests before the dinner, prevailed up to the last few centuries. After the meal the hands were washed again; the food was handled with the fingers, and the second washing of the hands was thus made necessary. The dining table was made of board laid upon trestles. The

meal over, the boards and trestles were taken away. The seats were wooden benches. Two meals a day was the rule; dinner at about ten or eleven, and supper at five. Knives and spoons came into use about the 14th century and forks much later. In the time of Richard III. the noblemen pulled their knives from their wallets when they began to eat.

The table was set near the wall, the diners usually next to the wall, the front of the table open without seats, for the approach of servants. At great feasts, jesters, mimics, musicians, etc., amused the company. The chief ornament of the dining table was the huge salt-cellar, set in the center of the boards. Next to it in importance was the "ship," or "nef," a dish in the shape of a ship for holding spices and sweetmeats. The "castor" of our childhood days is probably its modern representative. The mazer bowl completed the "china" outfit,—a large vessel from which all drank in common. The meats and other foods were placed either on the table or on wooden plates. The bones and refuse food were thrown by the diners at the dogs hungrily awaiting their share of the feast. Wooden trenchers, the first form of plates, are preserved as relics in England today, hollowed on both sides, and then it was turned over for the pudding. They show, of course, no signs of the use of knives and forks. The fingers made no marks!

FIG. 32.—From a piece of Bayeux tapestry, showing Harold's Manor House, with outside stairway, etc.

The modernness of the kitchen is shown in the fact that in old pictures the cooking is represented as carried on in the open air outside the hall, and even now the baking, even in the United States, is sometimes done in ovens outside the house. In common life the hearth or fire-place had been and long remained the sole cooking and warming place. An old picture of Rosham Church and Harold's Manor House, at Bosham, in Sussex, from a piece of Bayeux tapestry, is particularly illuminating. The outside stairway, the dogs waiting for bones, the drinking horns, impossible to be cleaned, all speak of the manner of dining of our ancestors for many centuries.

Henry VIII. issued an ordinance against his scullions lying about naked and filthy. The Courtiers and Commoners stank so that

Wolsey kept an orange filled with salts against the pestilent air, Erasmus ascribes the plague and the sweating sickness to filth, especially to clay floors covered with rushes under which were buried beer, grease, bones, excrement, etc. Thomas à Becket was blamed with luxury because the company room had fresh straw every day. Queen Elizabeth's room had straw. In 1680 the courtiers went to Potsdam on stilts because of the mire and filth.

The development of the church building is not a part of our subject, but may be glanced at. The word church itself shows the history; it meant simply the lord's house, or the ruler's house, and it was naturally the town hall, public hall, or basilica of the district or community. It was at once a temple and court of justice, the place where the local council met. The forms of these buildings are the same as those of the pagan basilica. The old English word castel, or *castle*, meant *village*. The watch-tower, for keeping watch or guard over the country about, was on the highest point, whence the signals of danger were given and received. The church tower was also used as a watch-tower, raised on high above the lord's hall for the same purposes as the watch-tower. The original use of the bell or bells in the belfry was to guide travelers home in dark nights, a light also aiding. The bell was also used to summon the burgesses together, and for sundry other purposes. The churches were thus the only public or municipal buildings in English towns during the whole period of the middle ages. They were at first, and for a long time, used not only as courts of justice, but as places of resort for the transaction of any kind of business. The markets in Europe are often still about or in front of them. Jesus drove the money-changers out of the temple. The history of the church has been in one respect a decline of secular power, until now the church building is used solely for religious purposes. The royal arms have at last been removed from all English churches, but the origin even of the most ornate is clearly the hut of boughs or poles. Take the belfry or watch-tower away from many a dear little English church, and the added "half bays" from the hall, and the original bay or hall is the beginning form. Do you think those crosses on the steeple and at the ends of the ridge-poles are Christian in origin? They are thousands of years older, and are the Vs or forks of the rafters made into ornaments and transformed symbols. The old Swede's church at Wilmington, Delaware, shows a quaint transition form, with its living room in the belfry, its watch-tower, its quarter-bays, etc. The most ornate cathedral, if it could be traced back, would show, in its evolution, the tree, the rafters, and the core of the single hall. It is plain that the church tower or belfry is the old round pole tent set before and fused into the later 'hall," become church.

Our American domestic architecture is derived from English models. At the first there was extreme simplicity as in the little house of Myles Standish, with its double-pitched roof—a still common proof of the difficulty of raising the roof and getting a second-

story. The later open-air verandahed southern style of the summer and warmer climate, as illustrated in Washington's Mt. Vernon house, shows how the fresh air and shade was sought, without adopting the aula of the Mediterranean house. Because we are English and Northern, the hall could not be forgotten, and the central pillared court was, as it were, put on the outside. In Mexico the house returns frankly to the Mediterranean model. The climate invites the patio or open central court. In New England the rigor

FIG. 33.—Washington's Mt. Vernon house, the open central court of the Mediterranean house, is, as it were, put on the outside of the house.

of the climate forced the addition of numerous bays, and half-bays, and brought the kitchen, woodshed, barn, etc., into unity and under one roof. All are frequently connected so that the farmer or housewife does not really go out of doors in the severest weather to attend to the cattle, horses, hens, etc. It has taken us a thousand years to get the barn separated, and at a distance from the house, to which it was long united; and at first house and barn were all one, as we have seen. In the South, even now, the kitchen often remains a separate building.

(To be Continued.)

MEDICAL AND SURGICAL PROGRESS.

DIAGNOSIS

IN CHARGE OF
ALBERT E. TAUSSIG, M. D.

SOME RECENT CRITICISMS OF THE ORDINARY METHODS OF GASTRIC ANALYSIS.

1. UEBER EINE NEUE FORM DER MOTILITAETSPRUEFUNG DES MAGENS.—H. Strauss und J. Leva (*Deutsche med. Wochenschr.* 1907, No. 29).
2. EIN BEITRAG ZUM MECHANISMUS DER MAGENVERDAUUNG.—P. Gruetzner (*Pflueger's Archiv.* 1905, Vol. 106, Nos. 10-12).
3. ZUM MECHANISMUS DER MAGENVERDAUUNG.—A. Scheunert (*Pflueger's Archiv.*, 1906, Vol. 114, Nos. 1 and 2).
4. UNTERSUCHUNGEN UEBER DIE SAFTABSONDERUNG UND DIE BEWEGUNGSVORGAENGE IM FUNDUS UND PYLORUSTHEIL DES MAGENS.—K. Sick (*Deutsch. Archiv. f. klin. Med.*, 1906, Vol. 88, Nos. 1-3).
5. DIE BEDEUTUNG DER SCHICHTWEISEN AUFFUELLUNG DES MAGENS FUER DIE KLINISCHE DIAGNOSTIK.—O. Prym (*Ibid.* 1907, Vol. 90, Nos. 3 and 4).
6. ZUR DIAGNOSTIK DES MAGENCHEMISMUS.—V. Bardenstein (*Berl. klin. Wochenschr.*, 1905, No. 33).
7. DIE ENTLEERUNG DES MAGENS, DIE TRENNUNG DES FESTEN UND FLUESSIGEN, DAS VERHALTEN DES FETTES.—O. Prym (*Muensch. med. Wochenschr.*, 1908, No. 2).
8. THE CLINICAL IMPORTANCE OF THE UNEVEN DISTRIBUTION OF HYDROCHLORIC ACID IN THE GASTRIC CONTENTS.—A. E. Taussig and W. H. Rush (*Boston Med. and Surg. J'l.*, 1908, No. 3).

During the past fifteen years repeated attempts have been made, by refinements in method, to obtain a clearer notion of what takes place in the normal and diseased stomach and to utilize this information for diagnostic purposes. A great number of methods have been proposed for determining more accurately the hydrochloric acid in the portion of the stomach contents obtained by means of the stomach tube. Matthieu and Remond have introduced a method, now widely used, of demonstrating the presence or absence of sluggish gastric motility or of hypersecretion by determining the total quantity of the stomach contents. The latter are withdrawn in part and then the stomach is washed out with 400 c.c. of distilled water. A comparison of the acidity of the portion first withdrawn with that of the wash water will give, by a simple calculation, if their assumptions are correct, the total quantity of the gastric contents. Sahli's flour and butter soup, it was believed, would give a similar result by means of the comparison of the amount of fat in the undiluted stomach contents with that in the wash-water. Strauss and Leva's method, proposed last year, is for all practical purposes identical with Sahli's, with the exception that they avoid one of Sahli's sources of error by substituting crackers of a known fat content for Sahli's flour and butter soup.

All of these methods, however, are based upon one assumption that recent work has shown to be fundamentally false. It is obvious that we can draw accurate conclusions as to the acidity, etc., of the gastric contents from the examination of a portion withdrawn through the stomach tube, only if the stomach contents are fairly homogeneous. Only in this case will the portion withdrawn through the tube for examination offer us a fair sample of the whole. Until recently this general homogeneity of the stomach contents was generally assumed by clinicians. Thus v. Mering in 1903 declared the most important function of the stomach to consist in mixing intimately the food it contains. In 1905, Vierordt and Sahli made similar statements and in the 1907 edition of his text book on stomach diseases, Boas implicitly makes the same assumption. Recent work, however, has shown that the gastric contents are rarely if ever homogeneous. The first observations made in this direction some twenty years ago by Ellenberger and his pupils were ignored until they were repeated more recently by Scheunert and by Gruetzner. The latter fed various animals (frogs, rats, rabbits, dogs, etc.) with food, the successive portions of which were of different colors. At varying intervals the stomachs were tied off, removed and plunged into a salt and ice mixture. The mushy contents, frozen solid and cut into sections, showed always a definite stratification. The different portions of the food, far from being intimately mingled, could be seen in layers, separate and distinct, one above the other.

All of these experiments were done with solid food. It might be thought that a liquid meal would result in greater homogeneity of the gastric contents. Prym[7] has investigated the behavior of Sahli's flour and butter soup in this respect. Dogs were given such soup, to which blue litmus had been added. At varying intervals the stomachs were tied off, cut out, frozen solid and cut into sections. The central portion and that near the cardia were usually found still blue in color, the rest having been turned red by the hydrochloric acid. Different portions of these contents were cut out, thawed and their acidity determined. It appeared that the degree of acidity was greater at the periphery of the mass than at the center, and decreased from the fundus toward the pyloric end. All of these observations show that the different portions of the gastric contents not only do not represent a homogeneous mixture of the food taken, but that they contain various amounts of the hydrochloric acid secreted by the mucosa.

It is clear, however, that these results cannot without verification be applied to human beings. Prym administered Sahli test meals to a number of patients, and expressed the stomach contents through a double tube with one opening at the tip, the other 10 cm. higher up. In this way he was able to get gastric contents simultaneously from different parts of the stomach, and found that the two portions varied widely in acidity. Still more beautiful work along these lines was done by Sick.[8] He used a stomach tube, ingeniously constructed, which enabled him at will to obtain gastric contents from fundus or pyloric portion. He found that in man, after a Sahli test meal, the acidity of the pyloric gastric contents was very much less than that of the fundal portion, and that, therefore, even after a liquid meal, the stomach contents are far from homogeneous.

It would seem, then, that the notions, generally accepted, of the processes that take place during gastric digestion require considerable modification. The observations referred to, together with those of Cannon and others, indicate that what happens is somewhat as follows. The fundus of the stomach plays the double part on a receiving and a secret-

ing organ. During digestion its lumen is separated more or less completely from that of the pyloric portion by a definite constriction dividing the stomach into two unequal parts, and offering considerable resistance to the free interchange of contents. The food as it is swallowed is received into the fundus, successive portions lying one above or in part within the preceding ones. The gastric juice does not entirely penetrate the semi-solid food mass, but attacks chiefly that portion which lies in contact with the mucous membrane. This portion becomes digested and liquefied and is transported to the pyloric portion, where the process is completed. Meanwhile the interior of the mass remains alkaline and continues to undergo amylolytic digestion under the influence of the swallowed saliva until the removal of the peripheral portion exposes the more central parts in their turn to the action of the gastric juice. The degree of acidity of different portions of the gastric contents must, therefore, vary widely. The peripheral portion of the fundal contents, since it consists of nearly pure gastric secretion, is most strongly acid, the pyloric contents are less so, while the interior of the food mass in the fundus becomes acid last of all. Incidentally, these observations explain how salivary and peptic digestion can go on simultaneously in the stomach.

In spite of all this, one might suppose that even though the undisturbed chyme be not homogeneous, the violent retching attendant upon the use of the stomach tube in ordinary clinical work may cause such an intermingling of the stomach contents as to obviate this objection in practical work. That this is not always the case was shown by Bardenstein, and later in a somewhat different manner by Taussig and Rush. It appeared that after all the stomach contents, obtainable by the methods ordinarily used, had been withdrawn a further sample could be obtained by special procedures. The acidity of this second portion often differed considerably from that of the first, showing that clinically, too, quantitative results obtained by analysis of the stomach contents must be interpreted with great caution. The upshot of the whole matter seems to be that while the simpler old-fashioned methods, based upon empiric observation, still hold good, the more refined methods of analysis, when applied to gastric contents, are often deceptive and rarely worth while. The Ewald-Boas breakfast consisting of tea or water and toast still remains the best test meal. From it we can obtain a trustworthy, if somewhat vague notion of gastric motility and the presence of great hyperacidity, subacidity or anacidity give us valuable information regarding gastric secretion. The methods of Matthien and Remond, Sahli, Strauss and Leva and the rest are, however, based upon erroneous assumptions and together with the more elaborate analytic methods applied to the gastric contents have no clinical value.

THERAPEUTICS.

IN CHARGE OF
WM. ENGELBACH, M. D.

BIER'S HYPEREMIA TREATMENT OF PULMONARY TUBERCULOSIS.

1. The Mechanical Treatment of Pulmonary Tuberculosis by Hyperemia and Acceleration of the Lymph Stream Induced by the

Pulmonary Suction Mask.—E. Kuhn (*Folia Therapeutica,* October, 1907).

2. Experiences with Kuhn's Suction Mask in the Health Resort at Slawentzitz.—Stolzenburg (*Muenchener Med. Wochenschrift,* No. 16, 1907).
3. The Increase in the Number of Red and White Corpuscles and Haemoglobin by Means of the Suction Mask, and its Relation to High Altitudes.—Kuhn (*Muenchener Med. Wochenschrift,* 1907).
4. Ibid.—Grober (*Congress of Medicine,* Wiesbaden, 1907).
5. Roentgen Ray Pictures of Position of Diaphragm with Suction Mask in Action (*Deutsche Med. Wochenschrift,* No. 37, 1906).
6. Bier's Hyperemia Treatment of Pulmonary Tuberculosis.—Willy Meyer (*Medical Record,* November 9, 1907).
7. Ibid.—Stolzenburg (*Penn. Medical Journal,* March, 1907).

The suction mask has been tested for the past two years on a large number of patients in the First Medical Clinic of the Royal Charite Hospital in Berlin, and in other public hospitals. (2) It has also been introduced into many health resorts, sanatoria, etc., in Germany. The advantages of the treatment and the experience which has been gained from its use may here be briefly summarized. (1) Perhaps the most striking feature about the use of the mask is the immediate change in the type of respiration which occurs. Owing to increased negative pressure in the thorax, the diaphragm is drawn by suction in an upward direction, and therefore participates but feebly in respiration. (5) Thus, a pre-eminently costal type of respiration is enforced, which gradually results in a considerable widening of the chest, especially of its upper part. Notwithstanding this widening of the thorax, stretching and emphysema of the diseased lung can not occur owing to the brake which is put upon diaphragmatic breathing. The lungs are even kept in a condition of rest, as, while the mask is being worn, the room at the disposal of the lungs for dilatation is less than with free, unimpeded respiration. Moreover, since respiration through the mask is, after all, but a practical application of the physiological "Mueller's experiment," each breath increases the intensity of the hyperemia in the lungs (passive hyperemia); for in the cycle of this type of respiration, inspiration is prolonged at the expense of expiration, and, therefore, the amount of blood drawn into the lungs during one inspiration can not be completely returned before the occurrence of the next. It is important to remember that with this hyperemia, unlike other passive congestions which, according to Bier, are associated with an injurious amount of lymphatic stagnation, the circulation of the lymph stream is maintained, and even accelerated; for at the same time that blood is drawn from the large veins into the lungs, the opening of the thoracic duct into the left angulus venosus becomes exposed to considerable suction, whereby the increased lymph supply, already present in the lungs in consequence of the pressure of the greater quantity of blood, is still further accelerated by aspiration. Respiration against resistance is also a valuable means of strengthening and developing the whole of the respiratory musculature, and, since the possibility of emphysema is excluded, is to be preferred to all other breathing exercises. To this must be added the absence of danger from hemorrhage from the lungs under the suction hyperemia. This fact has been gathered from experience with the mask, and is, besides, confirmed by the experiments of Bier in the treatment of wounds by strong suction. The hyperemia results, not from increased pressure from within, but from suction on the vessels from without, and the mask may even be employed for prophylactic treatment against hemorrhage, as, owing to the plethora of

blood in the vessels, the latter become better nourished and thick walled. The heart, also, is strengthened by better circulation of blood through it, and, when the mask treatment is not forced or too long continued, the heart may even be considerably disburdened of work by increase in the physiologic action of the inspiratory mechanism upon the pulmonary circulation; improvement is shown by the pulse tracing in conditions of cardiac weakness, by cessation of the murmur with the second pulmonary sound in mitral disease, and so on. (4) In consequence of the stimulation afforded by the rarefied air (diminished oxygen tension) to the blood-forming organs, a very considerable increase of red and white blood corpuscles and of hemoglobin often occurs, analogous to that which takes place at high altitudes. (3) Thus the patient, during treatment with the mask, also obtains certain advantages of high air; but he obtains these advantages under favorable circumstances, since the troubles of acclimatisation are dispensed with, and, owing to the increase in the blood elements, the oxygen-rich air of the lower altitude can better be used up; at the same time, a protection and a condition of quietude to the lungs is conferred which is not possible in the rarefied air of higher altitudes. As already observed, no injurious by-effects have manifested themselves. Slight headache may be complained of for a day or two, and, probably owing to the broadening of the chest and exercise of the respiratory muscles, trifling pains may be felt in that region, which disappear of themselves after a short time. As a rule, the patients so soon recognize the advantages and favorable results of this simple and easily comprehensible mode of treatment that they do not wish to be without it. Objectively, the following results may be observed: Improvement of respiration and dyspnea, considerable widening of the thorax, reduction of the frequency of respiration, cessation of cough, disappearance of expectoration, bacilli and rales, a more healthy color (owing to the improvement in the blood), increased appetite (the increase in the blood elements rendering possible the secretion of a greater abundance of bile and other digestive juices), and also, in consequence of the improvement in the whole blood and lymph circulation strengthening of the respiratory musculature and raising of the heart's power. It may, therefore, be said in conclusion that inspiration against resistance by means of the suction mask may be regarded as a most active agent in the prophylactic treatment of anemic or tuberculously disposed subjects. By it, a better state of development of the thoracic organs and their functions, and an increase in the number of blood elements are brought about; and the resulting hyperemia exercises beneficial effects upon the upper parts of the lungs, namely, those parts most disposed to tuberculosis.

INTERNAL MEDICINE.

IN CHARGE OF
JESSE S. MYER, M. D.

PANCREATIC DIABETES.—Cammidge (*Journal Surg., Gyn. & Obstetrics*, January, '08).—Taking into consideration both his own investigations and those of others, Cammidge concludes that at least 7 per cent of the cases of diabetes are pancreatic in origin, due to pancreatic disease, which can be demonstrated by macroscopical or microscopical examination of the pancreas post mortem. Since the development of his "pan-

creatic reaction" he has examined the urine of 48 cases of diabetes by this method, and obtained a positive result, suggesting that the diabetes was of pancreatic origin in 36 (75 per cent) of the patients. In 12 no reaction was obtained. Three of these were examined post mortem and no abnormality could be discovered. Two of the 36 cases were examined post mortem; one showed well marked interacinar pancreatitis, the other advanced fibrosis of the pancreas with calculi in the ducts.

He has divided his cases into three classes. 1. Those in which there was pancreatic mischief, probably secondary to some morbid influence reaching the gland by way of the ducts. 2. Those probably secondary to blood diseases or circulatory disturbances. 3. Those in which the diabetes was induced by malignant disease.

These three classes point the way to the therapy. In the first class—there is usually a long antecedent history of dyspepsia, or gastro-intestinal trouble, probably indicating a duodenal catarrh, or of attacks of jaundice of the catarrhal type, or of gall stones. Cases have been met with where the "pancreatic reaction" was positive one or two years before the appearance of glycosuria. Of four cases of biliary calculi with glycosuria and giving the "pancreatic reaction," three lost their sugar and pancreatic reaction after cholecystenterostomy. Gall stones should be operated on early, especially if there is a well marked "pancreatic reaction" in the urine.

The reaction is as follows: A carefully filtrated specimen of fresh urine is taken, and 40 cc. mixed with 2 cc. of strong hydrochloric acid (sp. gr. 1.16) in a flask fitted with a funnel condenser. The mixture is gently boiled on a sand bath for ten minutes, cooled in running water, and the contents of the flask made up to 40 cc. with distilled water. The excess of acid is then neutralized by slowly adding 8 grammes of lead carbonate. After standing for a few minutes the flask is again cooled and the contents filtered through a moist, close-grained filter-paper. The filtrate is well shaken with 8 grammes of powdered tribasic lead acetate, and the resulting precipitate removed by careful filtration. The lead in solution is now removed by passing a stream of sulphuretted hydrogen through the liquid for several minutes and filtering off the precipitated lead sulphide. The resulting clear liquid is next incubated at 37 C., to drive off the greater part of the dissolved gas, and when this has been accomplished, is carefully neutralized with decinormal sodium hydrate solution. After being diluted with an equal volume of distilled water, it is mixed with a small quantity of fresh cake (German) yeast and incubated at 37 C. to remove the fermentable sugar. At the same time a control specimen, which has been treated in exactly the same way, save that it has not been boiled with hydrochloric acid, is placed in the incubator, and from time to time samples of this are taken, filtered and tested for sugar by Kowarsky's method. When crystals of glucosazone can no longer be obtained, the original specimen is cooled, filtered and 20 cc. of the filtrate mixed with 0.8 grammes of phenylhydrazin hydrochloride and 2 grammes of powdered sodium acetate contained in a small flask, fitted with a funnel condenser. The mixture is boiled on a sand bath for ten minutes and then filtered hot, through a filter paper moistened with hot water, into a test tube provided with a 15 cc. mark. Should the filtrate fail to reach the mark, it is made up to 15 cc. with hot distilled water and stirred with a glass rod. After standing for 24 hours undisturbed the test tube is examined, and in cases of pancreatic diabetes a more or less well marked deposit of crystals will be found. Under the microscope these are seen to be small, fine, light yellow, flexible

sheaves, which when irrigated with 33 per cent sulphuric acid melt away and disappear in 10 to 15 seconds after the acid first touches them. On being collected and purified by recrystallization they are found to melt at about 160 C. They can be distinguished from glucosazone crystals by their appearance under the microscope, their ready solubility in 33 per cent sulphuric acid, and their melting point.

Appendicitis and Ulcus Ventriculi.—Mahnert (*Mitteil. aus den Grenzgebieten der Med. und Chirur.* Bd. 18, v. 3, 1907).—The author first goes into a discussion of the frequency of appendicitis. He divides the acute and chronic process and subdivides the chronic cases into (1) those cases wherein there has been an acute attack which has subsided; (2) those latent cases, without many subjective symptoms, which have not yet experienced an acute attack, but which to our surprise show at operation pus formation and ulceration; and (3) that form which never comes to an acute attack but gives rise to a varying number of subjective symptoms, often referred to other organs, but whose objective signs are characteristic to one experienced in their recognition. These cases need never experience an acute stage. The number of such cases is enormously large and among them are many which have been classed as stomach or intestinal catarrh, abdominal neurasthenia, rheumatism of the abdominal muscles, hypochondria, etc.

The author then follows the observations and work of Payr, who has observed many cases of ulcer of the stomach and at the same time a diseased though not perforating appendix. Payr asserts that these stomach ulcers originate from emboli out of the thrombosed veins of the omentum, the appendix, or its mesentery, and claims to have produced like results on animals by injecting aseptic emboli into the veins of the omentum. Hemorrhages and ulcers of the stomach which often showed the typical funnel shape of the peptic ulcer resulted. A number of cases from the author's clinic are cited, including four post mortems and several operations together with quite a number of unoperated cases of "stomach trouble" in which the diagnosis of appendicitis with subsequent ulcer was made. He therefore advises that every case of chronic appendicitis should be operated upon as soon as possible, urges upon the physician a thorough stomach examination in such case and asks the surgeon not to neglect a thorough exploration of the stomach and its surroundings when performing an appendectomy in a case which has given decided "stomach" symptoms.

The Etiology of Dengue Fever.—Ashburn & Craig (*The Journal of Infectious Diseases*, Vol. IV., No. 3, 1907).—The authors have studied the disease in the Philippines and reached the following interesting conclusions: 1. No organism, either bacterium or protozoon, can be demonstrated in either fresh or stained specimens of blood with the microscope. 2. The red-blood count in dengue is normal. 3. There occur no characteristic morphologic changes in the red or white corpuscles in this disease. 4. Dengue is characterized by a well marked leucopenia (the lowest count was 1,200 per cm., the highest 4,800 per cm.), the polymorphonuclear leucocytes being decreased, as a rule, while there is a marked increase in the small lymphocytes. 5. No organism of etiologic significance occurred in broth or citrated blood cultures. 6. The intravenous inoculation of unfiltered

dengue blood into healthy men is followed by a typical attack of dengue. 7. The intravenuous inoculation of filtered dengue blood into healthy men is followed by a typical attack of the disease. 8. The cause of the disease, is therefore probably ultramicroscopic in size. 9. Dengue can be transmitted by the mosquito, culex fatigans, and this is probably the most common method of its transmission. 10. The period of incubation in experimental dengue averages three days and fourteen hours. 11. Certain individuals are absolutely immune to dengue, as proven by experiments. 12. Dengue is not a contagious disease, but is infectious in the same manner as yellow fever and the malarial fevers.

ORTHOPEDIC SURGERY.

IN CHARGE OF
NATHANIEL ALLISON, M. D.

EARLY DIAGNOSIS OF POTT'S DISEASE.—Mouchet (*Ann. Med. et Chir. Infant.*, Feb. 15, 1906).—The classical symptoms of Pott's disease, i. e., kyphosis, abscess and paralysis, appear as a rule, long after the diagnosis should have been made by the physician. If one is to wait for any of these conditions to appear to make a diagnosis, he is at the same time neglecting treatment that if properly instituted will prevent their appearance in many of the cases. The author points out the necessity of making an early diagnosis, by calling to notice the following facts: Always there exists a premonitory period, short at times, but quite positive in its manifestations when a diagnosis should be made, depending on the history, which must be carefully taken from the parents, on the character of pain, remembering the fact that pain is felt in the abdomen and limbs and that a child will complain of sternal, epigastric or umbilical pain when the spine is the seat of disease. Again such children should always be examined entirely stripped of clothing and their attitude in standing and walking closely observed. The appearance of torticollis or scoliosis is quite suggestive. The flexibility of the spine should then be tested with the child lying on its face, the feet should be grasped and the curve of hyperextension observed. According to what region of the spine is affected there will appear rigidity. He says in any case of pain along the ribs, or radiating abdominal pain, place the child in ventral decubitis and examine the flexibility of the spine, and have the child stand and observe the position of the spine. Positive findings here, coupled with loss of appetite and restlessness, will aid much in the establishment of a diagnosis of Pott's disease before the appearance of bony deformity.

CHRONIC JOINT DISEASES TREATED BY TUBERCULIN INJECTIONS BY WRIGHT'S METHOD.—Ridlon (*Amer. Jour. Ortho. Surg.*, July, 1907).—A low tuberculo-opsonic index with local joint symptoms, may be accepted as evidence of joint tuberculosis. But a practically normal tuberculo-opsonic index, together with local joint symptoms, neither proves nor disproves joint tuberculosis. When the diagnosis of joint tuberculosis has been made a high tuberculo-opsonic index should be maintained, if possible. With a high tuberculo-opsonic index an operation for the removal of all or part of the local disease may be undertaken; not so with a low index. If use of the diseased joint lowers the opsonic index, the joint must be protected; if it does not lower the index, it may be per-

mitted; if it raises the index it should be insisted on. General elevation of the temperature following a tubercle injection indicated too large a dose. A persistent lowering of the index during treatment by tubercle injection indicates that the injection has been given at the wrong time, during what Wright calls the negative phase, instead of during the positive phase. He believes the tubercle injection treatment, when guided by the tuberculo-opsonic index, to be a most promising step in advance in the treatment of tuberculosis joint disease.

Iodin Treatment of Bone Infections.—McCurdy (*Amer. Jour. Ortho. Surg.*, July, 1907).—In infected areas in the cancellous portions of bone, there is no reason why sterilization will not be followed by prompt and complete recovery. The writer concludes as follows: (1) Blood-clot organization is typified in the repair of the maxillary process after the extraction of teeth. Here we may extract many teeth, leaving holes of considerable size which are immediately filled in with blood, and even the patient never hears of them again. Why not larger cavities? (2) All infected cavities, either in the central canal or surface of bone, should be immediately sterilized with tincture of idoin (U. S. P.). (3) When wounds are effectually disinfected they may be expected to close entirely in from four to five weeks, regardless of their size. (4) Old sinuses injected with tincture of iodin, using a syringe with a nozzle long enough to reach to the bottom of the sinus, will in many instances close without operation. (5) Mild toxicologic symptoms may be noticed in 24 hours from sinus injections, but the constitutional effect is beneficial, in one instance controlling for a time disease of the lungs. (6) The syringe used by dentists for cleaning patients' mouths served him best. (7) Iodin should not be used in joints that have normal synovial membranes, but pure alcohol should be substituted. (8) The practice of packing sterile cavities with gauze at every dressing is, he thinks, wrong, since it breaks down and destroys blood clots and valuable plastic material thrown out by nature to rebuild damaged tissues.

PEDIATRICS.

IN CHARGE OF
ALFRED FRIEDLANDER, M. D.

Report of an Epidemic of Glandular Fever.—Clemens (*Brit. Jour. of Chil. Dis.*, Dec., 1907) had occasion to study an outbreak of glandular fever in a male orphan asylum, where all the cases were continually under observation. All the infected boys slept in the same dormitory and in beds close together. The epidemic occurred during the first three months of the year. The ages of the children infected were 6 to 13 years. The period of incubation was from seven to ten days. It is noteworthy that an extensive outbreak of varicella had preceded the epidemic of glandular fever, though none of the boys with glandular had previously had chickenpox. Blood findings: The opsonic index for staphylococcus albus was positive and high. The blood counts in most cases showed slight leucocytosis. Blood cultures were negative. In ten cases the eye-ground findings were positive, showing hyperemia of the discs in seven cases and optic neuritis in three. The glands, whose enlargement is pathognomonic of gland fever, are the superficial and deep cervical.

The axillary glands are usually enlarged and tender. The occipitals, mastoids, parotids and inguinal glands, were not affected in any of the cases. The author believes that the naso-pharynx is the seat of infection, and the staphylococcus the probable cause. In one of the cases there was an acute nephritis.

Bacteriology of Meningitis.—Churchill (*Arch. of Ped.*, Dec., 1907) says that meningitis in early life is caused by a great variety of microorganisms, chief among which in frequency are the meningococcus of Weichselbaum and the pneumococcus of Fraenkel. In epidemics, a large proportion of cases is due to the meningococcus; but even in epidemics from 11 per cent. to 22 per cent. show the pneumococcus. The meningococcus gains access to the system through the nose and throat, is widespread in its distribution, and produces a true meningococcus septicemia. The meningococcus is found in the nose and throat of healthy individuals living in close contact with meningitic cases of this type. Such individuals should be isolated, as by their presence they help spread the disease abroad. The type of meningitis can not be determined from the clinical picture, but by lumbar puncture alone. According to the author, the prognosis in the pneumococcic variety is more unfavorable than in any other type. The meningococcic type, according to the author, is contagious, and the meningococcic cases should therefore be quarantined; possibly also the pneumococcic.

Epidemic Anterior Poliomyelitis.—McCombs (*Arch. of Ped.*, January, 1908) has analyzed all the cases of poliomyelitis admitted to the Children's Hospital in Philadelphia, during the past four and a quarter years. From July 1, 1903, to July 1, 1907, twelve cases were admitted. From July 23, 1907, to October 24, 1907 (three months), eighteen cases were admitted. The author therefore concludes that there has been an epidemic of acute anterior poliomyelitis in Philadelphia; that the disease must be infectious. He finds that cases seen at the Children's Hospital did not differ from the ordinary sporadic acute anterior poliomyelitis. No accompanying meningitis was seen during the epidemic, although one of the former cases showed the symptoms. It did not happen that two cases were reported from the same house, although two came from the same neighborhood; and three-quarters of the cases during the epidemic came from an area of ten city blocks square. Three weeks elapsed before the onset of the second case of two reported from adjoining houses.

The Relation of Physical to Mental Defect in School Children.—Cornell (*Psychological Clinic*, January, 1908) calls attention to the fact that if it be true that backward children usually exhibit defect of some sort, it should also be true that the physically defective among ordinary school children should show sub-normal mentality. In order to demonstrate this fact, he made a careful study of the children in three Philadelphia public schools. The result showed that in each school and in each individual branch of study in each school, the healthy or normal children stood higher in their classes than the average children; and the physical defectives, as a class, stood lower than the average children. His figures show that the educational result in our public schools suffers a discount of at least six per cent. in the case of the physically defective children, as well as a waste of the time rightfully belonging to the normal

children. His work is only another proof of the value of medical inspection of schools.

Exudative Pleurisy in Childhood.—Ssokolow (*Jahrb. f. Kinderheilk.*, January, 1908), as the result of careful clinical and experimental study, reaches the following conclusions: Free fluid in the pleural cavity collects at first in the lower lateral portion of the cavity. The exudation takes the form of a pyramid with the base on the diaphragm (crescent-shaped), with the truncated top at the lateral wall of the thorax, in the median or posterior axillary line. The author determined this fact through methods of clinical examination, by means of the x-ray, by pouring in various kinds of fluid into the pleural cavity, by means of anatomical studies, and by manometric measurements of the tension in the pleural cavity. The position of the fluid does not change with change in the position of the body, even in hydrothorax. The retraction of the lungs, which is most marked in those parts of the lungs furthest removed from the hilus, is the cause of the phenomena noted above.

NEUROLOGY.

IN CHARGE OF
SIDNEY I. SCHWAB, M. D.

Mechanism of a Severe Briquet Attack as Contrasted With That of Psychasthenic Fits.—Jones (*Journal of Abnormal Psychology,* No. 5, '08).—This paper, of a rather technical nature, is abstracted with the idea of presenting some of the later conceptions which have clustered about the term psychasthenia and particularly on the subject of psychashenic attacks or fits, and the effort that is being made to form a sharper line of demarcation between the various sorts of attacks seen in epilepsy, hysteria and psychashenia. The term epilepsy was used to cover so great a variety of attacks accompanied with unconsciousness, that there was danger of bringing the naturally bad prognosis of this disease into the question of the future course of many conditions which at bottom had nothing in common with it. Oppenheim deserves perhaps the credit of introducing the term psychasthenic convulsions, in describing certain attacks characterized by loss of consciousness, with or without convulsive movements. Spiller suggested the term attacks as being more precise but the term fit seems the more apt as embracing all the features found in them. Janet has applied the designation briquet attacks to the more common hysterical crises, in contradistinction to the elaborate performances described by Charcot. In the diagnosis of the nature of the fits we may collect evidence from the observation of the fit itself or from the examination of the patient during the interval period. If the fit is of the petit-mal type or grand-mal type the diagnosis is not as simple as if the fit were frankly hysterical.

Janet has called attention to this seeming paradox that unconsciousness itself, formerly thought to be so characteristic of epilepsy, is the one fact that serves to complicate our diagnosis. Heilbronner has remarked that the increase in our knowledge has only made the diagnosis of hysteria from epilepsy the harder as it has shown more and more of the usual symptoms associated with epilepsy reproduced in hysteria, so that now there is no longer a single symptom that can not be found in

fits other than epileptic. It is being recognized that there is in a grand-mal attack absolutely nothing in the nature of the attack itself to indicate its source. It follows that while in many varieties of fits it is possible to exclude epilepsy, it is hardly ever possible to exclude hysteria from observation of the fit alone. As a result of this advance in our knowledge the modern tendency has been to base the differential diagnosis, in doubtful cases, upon the investigation of the mental state of the patient during the free interval rather than upon the symptoms displayed in the fit itself. By means of the association reaction method Jung and Ricklin have obtained striking results in the differentiation of hysteria during the interval period. The keynote of this part of the problem is that if it is possible to discover what the author calls a disaggregated mental focus as an exciting cause of the fit then epilepsy is excluded absolutely. This can only be obtained by a careful analysis of the mental condition preceding the first attack, the information thus obtained is derived generally during a hypnoidal state. For recollection of events preceding an attack of this kind is usually lost. The author then relates an interesting case of this kind in which he was able to study the actual cause of an attack and to find out the actual mechanism of the fit. As he puts it, he was in the presence of a case of hysteria in the making. The study of the immediate mechanism of the fit is of the greatest importance in making a differential diagnosis. The importance of the distinction between the various sorts of fits is easily appreciated if the subject of treatment is considered. There can not be much doubt that many an epileptic has been untreated and many a psychasthenic or hysteric treated with the epileptic dose of bromide in the mistaken notion that fits are epileptic, if unconsciousness intervenes, and if certain classic symptoms are noted, and not if they are absent. This brings up the idea that perhaps the bromide medication given to the psychasthenic or hysteric may have but deepened the dreamy state so easily controlled by the subconscious and in this way made more or less permanent a condition which is of itself amenable to intelligent treatment. The author sums up as follows: In considering the differential diagnosis of fits of doubtful nature besides the careful observation of the fit itself and the investigation of the mental state in the interval periods, we may sometimes be able to obtain valuable indications from a study of the mechanism initiating an individual fit.

The Theory of the Periodicity of Nervous Symptoms.—Oppenheim (*Neurologisches Cent.* No. 1, 1908).—It is a constantly observed fact that symptoms of various kinds affecting the nervous system have the characteristic of appearing at various times with a certain degree of periodicity. Oppenheim quotes several interesting cases to illustrate this idea. Of interest is a case of cerebro-spinal lues, the attacks of pain and general symptoms showing a remarkable periodicity of twenty-four hours separating the well from the sick days. As illustrating this idea the author suggests that in the organization of the nervous system of certain individuals there is founded the disposition towards the periodic rhythmical appearance of pathologic symptoms which as a rule remain latent until they are rendered active by the occurrence of a process in the brain in the form of a focal disturbance.

Pseudo-Myasthenia of Toxic Origin.—Gowers (*Rev. Neurology-Psychiatry*, January, 1908).—This is a brief account of a peculiar symptom-complex observed in a man 38 years old. The chief interest

in the case lies in the close resemblance to a real myasthenia produced evidently by the inhalation of some poisonous gas, possibly petroleum fumes. The speech presented a typical myasthenic feature. When the patient began to speak his voice was good and articulation fair. As he went on speaking his voice became feeble and his articulation imperfect. He had great difficulty in moving his tongue and lips and after three or four minutes his articulation became so imperfect that his speech was unintelligible. The first failure was in the softness of the gutteral k and in the linguals and dentals such as l and r. The orbicularis was paretic. There was little outward movement at the angles of the mouth when he attempted to smile. He fully recovered under rest and change of employment. After returning to his work again the symptoms reappeared. When he permanently gave up his work he remained practically well and he has had no return in two years.

Cases Illustrating the Educational Treatment of the Psycho-Neurosis.—Prince—Coriat (*Jl. Abnor. Psychology.*, Vol. 2-4, 1907).—The authors report a number of cases which have been treated, to show the effect of psychotherapy. The general therapeutic procedures which they followed were as follows: 1. Instruction of the patient in the nature of the symptoms and disease. 2. Fixed ideas, apprehension, erroneous beliefs counteracted, faulty habits of temperament and character corrected. 3. Individual symptoms suppressed by electricity, suggestion and other therapeutic means. 4. Rules given for the daily conduct. 5. Improvement of nutrition, moderate rest, and, in extreme cases, isolation from previous surroundings.

The nine cases which are quoted illustrating the application of the principles contained in these divisions responded readily, and from a therapeutic standpoint might be considered very successful. The only criticism that might be offered is the incomplete data furnished in each case. It might be suggested that further elaboration would be interesting.

Loss of Comprehension of Proper Names.—Fry (*Journal Ment. and Nerv. Dis.*, October, 1907).—Fry reports a very interesting case of a form of aphasia that is rare in the reports in literature. In this case, following a trauma, the patient, an otherwise bright and intelligent young man, lost absolutely the power of using proper names. The loss of substantives, and especially proper names, was as complete as though the individual had never known any. The interesting thing about this case was that if the name were repeated to him he could say the word, or write it, but if asked such a question for example as "Who was George Washington?" the proper name did not convey any particular meaning to him whatever. The disability lasted about three weeks; at the end of that time names were coming back to him rapidly enough to give him the assurance that he would eventually recover. The problem of diagnosis and analysis in this case brings up the question of the difference between recollection and memory. In this connection the author has included in the article some quotations from Burr and others, which bring out clearly the distinction. The paper is a good example of a well reported clinical case and as such is worth reading.

DERMATOLOGY AND SYPHILIS.

IN CHARGE OF
J. J. HOUWINK, M. D.

NOTES ON THE TREATMENT OF HYPERTRICHOSIS.—Brocq (*Revue pratique des mal. cut., syph. et veneriennes,* No. 4, 1907).—There are only two methods of treatment for hypertrichosis that give good results: Electrolysis and X-ray treatment. In case of hypertrichosis involving a large area, it is hard to make a choice between these two methods, each having its advantages and disadvantages. The X-ray method requires less treatment and is not painful, but the result as to permanent cure is not certain; furthermore, the possibility of atrophy of the skin with teleangiectases and even ulceration cannot always be prevented. On the other hand, electrolysis requires a great many treatments, is painful and more expensive. The best method, in Brocq's opinion, is to let the patient decide upon the mode of treatment. Brocq does not agree with Leredde and Martial, who think that electrolysis is contraindicated in extensive cases of hypertrichosis, where the hairs are close together. He has cured several cases of this character by electrolysis, and urges its use, as every general practitioner can apply it with an inexpensive instrumentarium.

DAS ANDOLIN, EIN COCAINFREIES LOCAL ANESTHETICUM UND SEINE VERWENDUNG IN DER DERMATOLOGIE UND UROLOGIE.—Mayer (*Monats. für Pract. Dermat.* Band 45, No. 12).—Andolin was first introduced as a local anesthetic in dentistry by Wolff about a year ago. Mayer has experimented lately with andolin in operative urology and dermatology and recommends it highly. It is a combination of eucain, 0.5; stovain, 0.75; hydrochloricum, 0.008; and physiologic salt solution, ad., 100. The first two ingredients are well known as local anesthetics, the third as producing anemia, while the physiologic salt solution as a vehicle does not possess any action on human tissue.

The largest dose used by Mayer has been 10 cc. and he never noticed any bad results from these injections; still he cautions against the use of more than 10 cc. and bases this warning on his experiments on animals. The anesthesia produced by andolin is very deep, due to the vehicle, which allows the anesthetizing properties of the preparation to penetrate the tissue very easily. No bad effects on the tissue injected—such as edema, infiltration or necrosis—ever took place, and the preparation is absorbed very quickly.

Andolin can be sterilized without injury to the preparation; its use is unlimited in minor surgery, which is not the case with Schleich's solution.

Mayer has used this form of anesthesia in incision of purulent abscess, bubos, furuncles, Bartholinitis, in tamponading small cavities by pouring 2 cc. of andolin in the cavity before tamponading, in dilatation of strictures in the urethra, and before injections of strong solutions of nitrate of silver in the urethra, in cauterization with the paquelin, in phimosis operation, in excision of fibro-angiomata, and extirpation of atheromata.

ROENTGEN RAY IN EPITHELIOMA.—Pusey (*Jour. A. M. A.,* January 11, 1907).—The writer reports a series of 111 cases of epitheliomata treated with x rays more than three years previous to July, 1907. In

these 111 cases were included several hopeless cases with wide involvement of the orbit and others with extensive and very destructive lesions. Of these 111 cases 80 were cured and have remained well to day or have died without recurrence of the epithelioma. Of the remaining 31 cases, 2 cases were practically well, 17 cases distinctly benefited, while 12 were not benefited at all. However, 8 of these 12 cases were entirely hopeless from the start, even from a surgical standpoint. Counting the 31 cases, that were not radically cured, as failures, there remain 80 successful cases, a showing of 72%. The diagnosis was beyond doubt in every case—in cases where some doubt existed, a microscopical examination of the tissue was made. This record certainly shows the great value of the x rays in epithelioma.

Opsonin and Vaccine.—McConnell (*St. Louis Medical Review*, November, 1907).—McConnell protests against the use of the term opsonic treatment, and urges the expression vaccine treatment. Opsonin is some undetermined substance within the blood that influences bacteria in such way as to make them fit material for engulfment by phagocytes. We do not administer opsonins in any form to the patient, but introduce an emulsion of dead bacteria in order to stimulate the formation of the opsonins. Therefore the term vaccine treatment would be proper.

McConnell also saw good results from the use of the so-called stock vaccines, but in some instances he found the autogenic vaccines more satisfactory. As the obtaining of the opsonic index is a matter of much technical skill and much experience, he advocates watching the patient and note either improvement or lack of it, while a practical method is found in relying upon a definite cloudiness of the suspension. This method is as accurate as the measuring of the dosage by Wright's method.

The Thyroid as a Factor in Urticaria Chronica.—Ravitch (*Jour. of Cut. Diseases*, November, 1908).—The author believes firmly that thyroid extract is a specific in chronic urticaria. The thyroid gland has the power of neutralizing poisons and products of auto-intoxication in the blood according to a large number of pathologists. In which way, however, is not well understood at present. Leopold, Levi and de Rothschild came to the conclusion that urticaria is often an expression of hypothyradism, and that the cutaneous lesions are due to an acute intoxication. In certain cases they got rapid improvement by thyrotherapy. Dr. Ravitch reasoned from the analogy that the thyroid being a much more active and necessary gland in women than in men and knowing that rebellious cases of urticaria are also more found in women than in men, came to the conclusion that in the majority of cases chronic urticaria was due to the disorders of the thyroid. Dessicated thyroids in combination with nux vomica were given in his cases, producing at once remarkable improvement, and later on, cures.

In cases where the thyroid glands are enlarged the writer recommends remedies which will allay stimulation and cause the secretion of the thyroid to diminish, as thyroidectin (blood of thyrodectomized animals), strophanthus, bromides, atropin and x ray.

CORRESPONDENCE.

PARIS LETTER.

(FROM OUR OWN CORRESPONDENT.)

The recent communications delivered either before the Paris Congress of Medicine or before divers scientific societies, on the treatment of tuberculosis, leave nothing to be desired in connection with the many difficulties which beset the medical practitioner when treating this disease. His embarassment is extreme, not only on account of the multiplicity of methods but, also, on account of his scepticism, which is quite formidable today and will be more so as the methods increase in number. Despite these obstacles to a better understanding of the disease, three hygienic procedures—repose, aeration, and alimentation—are of enough importance to engage our earnest attention at present.

What has become of the medicaments designated "specifics for tuberculosis?" Let us speak first of the serums. Those of Maragliano and Marmorek have had a short period of success due to a number of partisans with misguided enthusiasm; but, today, their popularity has fallen into abeyance because they are known to be productive, too often, of very serious accidents. Moreover, it would appear that an antitoxin does not suffice to neutralize a tuberculous infection; on the contrary, what is necessary is a product which would act on the lesions made by the bacilli themselves. As for the tuberculins, although they have raised even greater hopes than the serums, they also have little to register in the way of credit.

The tuberculin (T. R.), used at first by Wright and numerous others, was soon dropped as too dangerous. The tuberculin of Koch, the old tuberculin (T. O.), has not been used in France for some time; but in other countries its use is being revived. As to the tuberculin of M. Denys, of Louvain, the good reports of which we heard so much at the last medical congress, were seemingly only reports, for it is not nearly so efficacious as the tuberculin of Prof. Beranch, of Neufchatel, which today is enjoying considerable vogue in Switzerland. Finally there is the tuberculin from the Pasteur institute at Paris, which has recently been used at the Bligny Sanatorium in doses beginning with 1-250 milligram and progressively increased to 1-20 milligram. The results are not unfavorable, and we hope that the experiments will be the means of establishing a definite scientific posology, so that we may have a medicament, useful as a defense against tuberculosis.

Although the specific treatment of tuberculosis has not yet been discovered, the scientific investigators are not discouraged; therefore we hope their efforts will before long prove successful. In default of a specific treatment, certain adjuvant medicines have been highly praised and, we may add, they are of enough interest to warrant our attention. With no special reference to atoxyl, which was wrongly thought to be a specific in tuberculosis, to the paratoxin of M. M. Lemoine and Gerard, which is yet in the incipiency of experimentation and appears to give amelioration only in the first two stages of the disease, or to the divers organotherapic methods (extracts of the thyroid gland and suprarenal capsules, the juice of the plant, pulmonaria—lungwort,—and the hypophyses), it would be well to consider, briefly, the marine serum which is administered, in injections, after having been sterilized and rendered

isotonic. Used in small doses, about 50 centimeter cubes per week, in the apyretic tuberculous, it produces improvement of the appetite, increase of weight and a better state of the general health. On the contrary, when the dose indicated is doubled or trebled, a variable increase in the temperature, reaching at times to 105° Fahr., results; soon followed by a decided aggravation of the general condition.

More interesting is the recalcification method. Starting with the idea that the tuberculous are in a decalcified state and that tuberculosis and decalcification march hand in hand, treatment by recalcification has been sedulously followed. Although from a theoretic standpoint, serious objections have been urged against this method, it devolves on us to say that, from a practical standpoint, the results have been gratifying. The insoluble lime salts produce, in the organisms of the feeble, quantities of chloride of calcium. This salt has a good effect on the digestion and its action on nutrition is undeniable. The calcium salts are, moreover, the antagonists of the sodium salts; hence their favorable rôle with regard to the circulatory system in the tuberculous.

This short survey gives only a faint idea of the multiplicity of methods which have been extolled for the treatment of tuberculosis; but incomplete though it be, it will suffice to show how prudent one ought to be as to the correct interpretation of the published results of any one of them. M. Renon has wisely said: "Each new procedure for the treatment of tuberculosis, provided that it be inoffensive, is followed by satisfactory results," and, in fact, the faith of the doctor in the new method is soon transferred to the patient, who is not long in developing psychic factors favorable to a recovery. Therefore, it is not wrong to say that the real efficacy of any treatment for tuberculosis depends on its surpassing ameliorating qualities and the fact whether it has stood the test which only time can impose. But this much is true that all invalids and, especially, the tuberculous, imbibe an element of vitality from the fact that their wants are not being neglected, and that for their benefit are being used all the resources of inoffensive therapeutics. Surely this is better than abandoning them to the hopelessness and despair which no treatment—therapeutic nihilism—would entail.

Feb. 10th.

OBITER DICTA FROM FOREIGN JOURNALS.

THE DANGERS OF THE OPHTHALMO-TUBERCULIN REACTION.

Dr. A. Trousseau, in the *Journal de Médecine et de Chirurgie* for Jan. 10th, has the following to say on this vital subject: The noisy demonstration which has followed the advocacy of the ophthalmo-tuberculin reaction has made it my duty to mention the dangers following its use, if only to warn medical practitioners against what they really suppose to be a safe procedure and one that can not possibly result in their own mortification.

Despite the enthusiastic statements, amounting almost to asseverations, made before various medical societies anent the harmlessness of the ophthalmo-tuberculin test, it is well here to warn medical practitioners of the possibility of inconveniences, and even of perils, which might have a decided bearing on their responsibility as men of standing in the medical community.

Now the facts which have accumulated ought to cause some inquietude. I do not assert that the untoward cases are sufficient in number to make us abandon the method; but what I wish to convey is that the procedure should be limited to those patients in whom an exact diagnosis is of paramount importance. The conjunctival reaction does not invariably occur in the tuberculous (Chauffard's case) and may be manifest in the non-tuberculous (Truc et Mallet, Souques, Méry, Schenck et Seiffertz). Schiele has demonstrated that when patients have conjunctival granulations, the reaction is violent. The fallibility of the method, therefore, is an argument against its abuse.

After one drop of tuberculin is instilled on the palpebral conjunctiva, if the reaction is positive, lachrymation sets in after five hours; after seven or eight hours, the hyperemic conjunctiva secretes, and between 12 and 20 hours the irritative symptoms attain their maximum, and are followed by recurrence of the normal condition in the order just indicated. Though the symptoms are of no importance in the majority of cases, in others the reaction may be violent and persist for some days. Comby, impressed by these facts, has recommended a weakening of the solution (½ to 100). And let me add, his advice was the first given at the time the enthusiasm for the procedure was at its height. Sydney Stephenson (*The Ophthalmoscope,* Dec. 1st, 1907) has seen, after instillation with tuberculin, 3 cases of follicular conjunctivitis, which have persisted from 20 to 40 days, and Terrien (Société d'Ophtalmologie de Paris), a conjunctivitis lasting 2 months, which terminated by having the aspect of a tuberculosis of the conjunctiva. Barbier and Rénon have seen cases of conjunctivitis persist from one to two months.

It is evident that a conjunctivitis following an instillation of tuberculin is not always benign and, at times, may assume considerable gravity. I

myself have observed this in a number of instances. In May, 1907, I attended a child aged 7 years, who after an attack of measles, developed a phlyctenular conjunctivitis which improved in the course of 6 days with ung. hg. ox. flav. This child had had, in the beginning of November, a mild attack of bronchitis which necessitated his being confined to his bed for 4 days. The parents begged the attending doctor to try the Calmette reaction. The inflammation which followed was extreme and was accompanied by a very abundant secretion from the swollen lids. After 21 days the child was brought to me, and it required considerable time and attention to effect a cure. To my great surprise, on Dec. 8th he had a recurrence of phlyctenular conjunctivitis, more intense than the first attack, and though treatment was effective, I am nevertheless of the opinion that here was an unnecessary re-awakening of a predisposition of the conjunctiva to the disease, instigated by the tuberculin. The moral of all this is self-evident: the parents, firmly convinced that their son was tuberculous, though the doctor could not constitute any clinical signs of the disease, insisted upon a test which caused only inconvenience and suffering to their child.

At the Paris Société d'Ophtalmologie (Oct. 8th, 1907), M. Kalt reported a number of instances of a very grave nature. He presented a man who had had, since the month of April, an irido-choroiditis of the right eye and a sclero-keratitis of the left. A 1 per cent tuberculin instillation was followed by a hyperemia of the conjunctiva. Some days later there was considerable augmenting in the infiltration of the sclera and the cornea in the eye which had been subjected to the instillation, and soon the vision was reduced to a mere perception of light. Another case of interest is that of a child who had a tuberculous iritis. The instillation of tuberculin caused, at the end of 8 days, a serious exacerbation of the disease which, judging by its symptoms, would not have occurred without the test. With the mention of the next case which I saw only a short time back, I hope to influence others into my way of thinking—that in cases of ocular tuberculosis, the instillation of tuberculin is followed by grievous results. Recently I was called in consultation to a young woman whom I had already attended in October for a tubercle of the conjunctiva. Despite the diagnosis by biopsia, a ½ per cent tuberculin solution was instilled in the eye. The reaction was violent during 8 days, after which the tuberculous foci invaded the entire mucous membrane; Dec. 12th, a month and a half after the test, there was a tubercle of the iris, though the latter was normal at the end of November. I know of another case of tuberculous iritis, which was greatly aggravated by an instillation where the reaction was nil.—[Translated for the INTERSTATE MEDICAL JOURNAL.]

MONTAIGNE AND THE MINERAL WATERS.

Dr. Delacroix has recently published an unusual thesis entitled, "Montaigne Malade at Médecin," in which he displays considerable

erudition and quite remarkable talents as a writer. According to the author, Montaigne's condition, which is attributed to a neuro-arthritic diathesis, was responsible for his inflexible opinions on war and science. "Montaigne," says Dr. Delacroix, "being a confirmed invalid, made a study of mineral waters during his lengthy sojourns at watering-places in France and Italy." The results of his observations are best summed up by the philosopher himself: "Do not deceive yourselves that the therapeutic virtues of the waters are of infinite value; about all they can do is to give you a limited amount of strength and relief. They surely cannot cure; they buoy up flagging spirits and a real or imaginary weakness, and sometimes head off the incidence of a physical or mental change." If Montaigne ever expected the waters to effect a cure in his case, it was on the theory that "they (the waters) are less artificial than drugs, for mineral water is natural and simple and, at the least, is not dangerous, though of small value generally and even, at times, worthless; a conclusion quite apparent when one notes the multitudes of people who frequent these places."

In regard to gravel Montaigne says that "when mineral water is taken in abundance (about 3 liters), it opens the passages, flushes the bowels, breaks the stones into pieces of which process I am certain, for before it takes place the stones feel large. Later I pass very small particles, these being driven out by the waters which dilate and open the passages. Finally, mineral water stimulates the liver." Here we have the chemical effect of the crumbling and dissolving of a calculus; the mechanical process of driving the particles without; the antiseptic results from flushing the excretory passages, and the action on congestion and engorgement of the liver. Montaigne never forgot, each day, to compare the amount of water drunk with the amount of urine passed. When the volume of urine passed was not equal to two-thirds of the water taken, he remarks that "the excess of liquid absorbed, after dilating and fatiguing the digestive tract, ends by increasing the pulmonary circulation; the important point is not how much water has been passed but how much less than the quantity drunk." And finally in his journal, Montaigne writes, "I was grieved to see that I was not passing a sufficient amount of water." Upon ascertaining that he had passed only one-fifth of the amount of liquid imbibed, he reduced the amount, "fearing lest it would stop altogether."—[Translated for the Interstate Medical Journal.]

RED CROSS NURSES IN JAPAN.

Major Fischer, in the *Archives de Médecine Militaire* (No. 11) gives very complete details as to the organization of societies for the health of the wounded soldiers in Japan. The account shows the remarkable advance over antiquated ideas and the complete transformation in the manners and habits of a people who, but a few years back, were as unprogressive as are the Chinese today. The innovation of women as

voluntary nurses had absolutely no connection with religious ideas, for had this been the case, they would have imitated the Buddhist nuns who have always obstinately refused to nurse men; and also would have run contrary to the antiquated edict which reads that no honorable woman shall nurse any man but her husband. In 1887, public-spirited Japanese, accompanied by their wives, traveled in Europe and made it their mission to study the various methods of the Red Cross nurses. They met princesses who were at the head of the nurses' corps and soon learned that nursing could be done without sacrifice of prestige. Directly these travelers returned home, royal princesses and members of the aristocracy, recognizing the many benefactions that they could bestow on the army, resolved to show the courage of their convictions by the intrepid act of devoting their lives to the wounded soldiers. Not only would they show to the people at large that such services are useful to the country, but also that the woman who devotes herself to so high a calling really elevates herself in the estimation of the public. Thus was founded the Red Cross Union which was composed of all the royal princesses and the women of the highest aristocracy under the patronage of the empress.

The Union was a success from the start. At present there are 41 sections numbering 10,000 members. In every garrison, the wife of the military governor is president of the local committee, while the wife of the imperial representative is vice-president. All the members are grounded in the theory and practice of the art of nursing. In the Chinese-Japanese war, 1894-95, of 1,587 voluntary nurses there were 649 Red Cross nurses and in the Boxer revolt, 1900-1901, of 401 voluntaries there were 201 of the same order. Finally in the Russo-Japanese war, the Red Cross furnished 5,466 voluntaries, of which number 2,096 were nurses. This war lasting 18 months was the cause of a heavy tribute to mortality on the part of the nurses; but despite this untoward occurrence, the lesson of courage and self-sacrifice, which the activities of the nurses made clear to the people, was not without good effect, for today appreciation runs even higher than directly after the close of the war.—[Translated for the INTERSTATE MEDICAL JOURNAL.]

HISTORICAL NOTES.

JENNERIANA.

Birth. Edward Jenner, the author of what Matthew Baillie called the most important discovery ever made in medicine, throughout his professional career, with the exception of a brief period during which he practised in London, was a country doctor. He was born in Berkeley, a Gloucestershire village of which his father was vicar, on May 17, 1749. After receiving an ordinary classical education, young Jenner was apprenticed to Mr. Ludlow, of Sodbury, a medical practitioner of good reputation. In 1770 Jenner went to London to finish his medical education at St. George's Hospital.

Jenner and John Hunter.—During his stay in London Jenner was a pupil of John Hunter, under whose roof he lived for two years. A close friendship existed between these great men. Jenner's letters to Hunter have been lost, but those of Hunter to him were carefully preserved. They show the famous surgeon in a happy light, asking Jenner to collect hedgehogs, eels, porpoises, salmon spawn, etc.: and suggesting experiments on the temperature of animals, and various problems of natural history such as a country practitioner would likely find opportunities for solving. In 1771, when Captain Cook returned from his first voyage of discovery loaded with specimens of natural history, it was Jenner who arranged the collection, having been recommended to Sir Joseph Banks by Hunter for this purpose. In 1773 Jenner returned to his native place and began his duties as a country practitioner. Two years later Hunter communicated to him a scheme for the establishment of a great school of anatomy, human and comparative, in London, and suggested that Jenner should take part in the enterprise as an assistant. Jenner, who preferred a modest life in the country to a more ambitious existence in the metropolis, did not accept the proposal.

Personal Appearance of Jenner.—Edward Gardner, who became one of Jenner's closest friends, has left this description of the country doctor: "His height was rather under the middle size; his person was robust but active and well formed. In his dress he was peculiarly neat, and everything about him showed the man intent and serious, and well prepared to meet the duties of his calling.

"When I first saw him, it was on Frampton Green. I was somewhat his junior in years, and had heard so much of Mr. Jenner, of Berkeley, that I had no small curiosity to see him. He was dressed in a blue coat and yellow buttons, buckskins, well-polished jockey boots with handsome silver spurs, and he carried a smart whip with a silver handle. His hair, after the fashion of the times, was done up in a club, and he wore a broad-brimmed hat.

"We were introduced on that occasion, and I was delighted and astonished. I was prepared to find an accomplished man, and all the country spoke of him as a skilful surgeon and a great naturalist; but I did not expect to find him so much at home on other matters. I, who had been spending my time in cultivating my judgment by abstract study, and, smit from my boyhood with the love of song, had sought my amusement in the rosy fields of imagination, was not

Jenner vaccinating a child. (From Holländer's Die Karikature und Satire in der Medizin.)

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less surprised than gratified to find that the ancient affinity between Apollo and Esculapius was so well maintained in his person."

Statues of Jenner.—Numerous statues have been erected in honor of Jenner, the following list comprising the principal ones:

1.—"In the year 1821 a handsome monument to Dr. Jenner stood in the great square of Guatemala, a magnificent city in Central America. * * * "There the name of Jenner was honored and revered, even during his lifetime, as a benefactor of his species, and more worthy of a niche in our esteem than many of those who have been lauded as the conquerors and destroyers of mankind."—*Glasgow Herald,* June 5, 1858.

2.—Bronze statue by Calder Marshall, R. A., now in Kensington Gardens, London.

3.—Statue by Sievier at the west end of the nave of Gloucester Cathedral.

4.—Statue at Brünn, in Moravia.

5.—Bust by H. Corbould. A lithograph of this bust by R. J. Lane forms the frontispiece to Vol. II. of Baron's *Life of Jenner.*

6.—Bust by S. Manning.

7.—Marble statue by Monteverde. Jenner vaccinating a child. Exhibited at the Paris Exhibition of 1878. Now in Boulogne. (*British Medical Journal,* May 23, 1896.) Holländer (*Die Karikature und Satire in der Medizin,* p. 293, Stuttgart, 1905) says that this statue is in Genoa. (See illustration.)

SOCIETY PROCEEDINGS.

ST. LOUIS SURGICAL SOCIETY.

Meeting of January 8, 1908.

Dr. H. Tuholske read a paper entitled "Unusual Positions of the Appendix, With Report of Cases," for which see page 270.

DISCUSSION.

Dr. Tupper mentioned a case of unusual position of the appendix in connection with strangulated hernia, under the care of Dr. Blair when the latter was associated with him. On operating, the hernial sac was found to enclose a part of the cecum and a very much inflamed and attached appendix, the caput coli being well outside the constriction. The constriction was relieved, the appendix removed and the patient made a good recovery.

He mentioned another case, not bearing on the subject of the appendix, but on unusual hernial protrusion. The patient was a woman suffering from inguinal hernia, who stated that occasionally the ovary seemed caught in the hernia, because she felt the peculiar pains following involvement of the ovary. On opening the sac he found in addition to a knuckle of the intestine, something which seemed to be an ovary, but he barely saw it as it escaped into the abdominal cavity. He closed the opening for the hernia radically, and then made a median incision to explore the right ovary. The woman had unquestionably diagnosticated the condition correctly, as the ovarian ligament was of such length as readily to permit the ovary entering the hernial sac. The damaged condition of the ovary necessitated its removal. Relief of symptoms referable to the hernia and ovary followed.

Dr. Homan asked whether the negro comes under the knife for this disorder as often as the white. He thought that possibly the eating of more highly spiced food and its more delicate preparation, might have something to do with influencing the condition.

Dr. Tuholske, in closing, said he remembered the case of hernia mentioned by Dr. Tupper, and that he had diagnosed the ovary as being in the hernial sac. He stated that Dr. Dixon had had a case during last year, originally under the care of Dr. Saunders, in which a new-born bade, within a week of birth, had a strangulated hernia and in it the appendix. It was removed and the little patient recovered. This was the youngest patient he had ever heard of having been successfully operated on for this condition.

BOOK REVIEWS.

TEXT-BOOK OF DISEASES OF THE SKIN. By Arthur Van Harlingen, Ph.B., M. D. Fourth Edition. Price, $3.00. P. Blakiston's Son & Co., Philadelphia, Pa.

One of the best works on diseases of the skin, written by an American dermatologist for the busy general practitioner and for students. The reader is not bothered more than is necessary with a description of the anatomy and physiology of the skin, nor with an extensive description of the lesional configuration, distribution, etc., of skin lesions. General etiology, pathology, diagnosis and treatment are not given space in this book under separate headings, but are mentioned sufficiently with the description of each particular disease and thereby make the book more useful for students and general practitioners.

Of the exanthemata only varicella is mentioned, for the reason that the others are described extensively in every book on general medicine. Of syphilis only the skin manifestations are described, and very little space is given to the treatment of this most important disease, which we regret. Compared with previous editions, this fourth one shows that the text has been rewritten for the greater part, so that the book is brought up to the present state of our knowledge of dermatology.

Several new illustrations are added; some space is given to a brief account of the pathologic anatomy of the various diseases, while several diseases that were not mentioned in previous editions are now described. Where we found the diseases arranged alphabetically before, they are now arranged according to the classification generally adopted by American teachers of dermatology. The changes mentioned make the book more useful for students, and for the general practitioner we know of no better American book on this subject.

TREATISE ON DISEASES OF THE SKIN: FOR THE USE OF ADVANCED STUDENTS AND PRACTITIONERS. By George W. Stelwagon, M. D., Ph.D., Professor of Dermatology, Jefferson Medical College, Philadelphia. Fifth Edition, Revised. Handsome octavo of 1150 pages, with 267 text illustrations and 34 full-page colored plates. Philadelphia and London: W. B. Saunders Co., 1907. Cloth, $6.00 net; half morocco, $7.50 net.

The fact that five editions of this book and two extra editions appeared in five years is certainly the best recommendation for it. As. Dr. Stelwagon's book has been reviewed in this journal before, we will only mention that some obsolete material in former editions has been omitted, while valuable additions of new matter reflecting the latest investigations and literature are made. The main additions and changes are found in the diseases rendered more important by our closer touch with tropical countries.

The articles on frambesia and oriental sore have been rewritten, and those on verruga peruana and tinea imbricata changed and added to. New tropical subjects are introduced, of which we mention especially dhobie itch and uncinarial dermatitis. The eruptions of the leukemias and meralgia parasthetica are mentioned for the first time. The large number of illustrations and plates are enriched by fifteen new ones, making the book still more valuable to the practitioner. Dr. Stelwagon's works on diseases of the skin is, in our opinion, the best American book on this specialty, both for practitioners and for students.

SYPHILIS IN ITS MEDICAL, MEDICO-LEGAL AND SOCIOLOGICAL ASPECTS. By A. Ravogli, M. D., Professor of Dermatology and Syphilology in the Medical College of Ohio, Medical Department of Cincinnati University. Publishers: The Grafton Press, New York.

This is a book which we can recommend very highly not only to the medical profession, but also to lawyers, ministers, statesmen and every educated layman. We have here a very thorough book on syphilis, not only from a medical but also from a medico-legal and sociological standpoint, which makes it of interest for everybody who feels for the welfare of our communities. The enormous amount of suffering and unhappiness caused by syphilis is well illustrated and should be understood by every well-meaning citizen so that the proper measures could be taken to prevent as much as possible the great harm done by this dreadful disease. Ignorance is the main reason why the social plague is not kept in its possible limits. The book of Dr. Ravogli can be of great benefit in improving conditions if it reaches the people mentioned above.

A brief, up to date, historical sketch of the search for the causal agent of

development of scoliosis have given to the literature on this subject some most interesting original views. His present work is, perhaps, the best work on lateral curvature that has appeared in the English language. It possesses a certain advantage over the extensive treatises written in German in that it is concise and describes quite definitely what has been the author's experience in the treatment of these cases.

A Practical Treatise on Fractures and Dislocations. By Lewis A. Stimson, B. A., M. D., LL.D. Professor of Surgery, Cornell University Medical School, New York; Surgeon in New York and Hudson Street Hospital. Fifth Edition, revised and enlarged. With 352 illustrations and 52 plates in monotint. Lea Bros. & Co., Philadelphia, Pa., 1907.

This work first appeared in 1889 as a new book. Since then it has passed through four editions and we now have the fifth. There is a noticeable increase in this book over the first edition volume. So much has been accumulated by the x-ray in recent and old cases, especially in fractures involving joints and the small bones, that the author has made considerable increase in the sections covering fractures in the carpal and scaphoid bones, the upper end of the radius, the tarsal bones, and dislocations of the semi-lunar; also the reports of rarer cases of injury have increased so greatly that it has become impossible to mention them all. The book differs little from its immediate predecessor, but like to it, it is a most valuable text book.

International Clinics. Seventeenth Series, Vol. 3. Edited by W. T. Longcope. J. B. Lippincott Co., Publishers, Philadelphia, Pa.

This volume is similar to the long list that has gone before, in that it contains some very interesting articles on almost all the subjects comprising modern medicine.

Roentgen Rays and Electro-Therapeutics. With a chapter on Radium and Photo-Therapy. By Mihran Krikor Kassabian, M. D. Published by J. B. Lippincott Co., Philadelphia, Pa.

This book presents clearly and concisely the more important facts pertaining to Electro-Therapeutics and the Roentgen Rays. It is similar in size and scope to the book published by Williams, but contains a more modern view of the various applications of electricity and x-ray light to medicine and surgery.

The Production and Handling of Clean Milk. By Kenelm Winslow, M. D., M. D. V., B. A. S. (Harv.). With many illustrations, including 1 colored and 15 full-page plates. New York: William R. Jenkins Co. 207 pages. Price $2.50, postpaid.

The author has had an extended experience in the production and handling of milk, and in this work has enjoyed the advantage resulting from a knowledge of both veterinary and human medicine. The volume will be of value to health officers, milk inspectors and physicians in private practice who are interested in matters pertaining to dairying and hygiene.

Our Children. Hints from Practical Experience for Parents and Teachers. By Paul Carus. 207 pages. $1.00 net. The Open Court Publishing Co., Chicago, Publishers.

The author has written a book which physicians can place in the hands of parents with much satisfaction. The volume deals in a practical manner with many pedagogic problems concerning which the family physician is often consulted.